

100

2

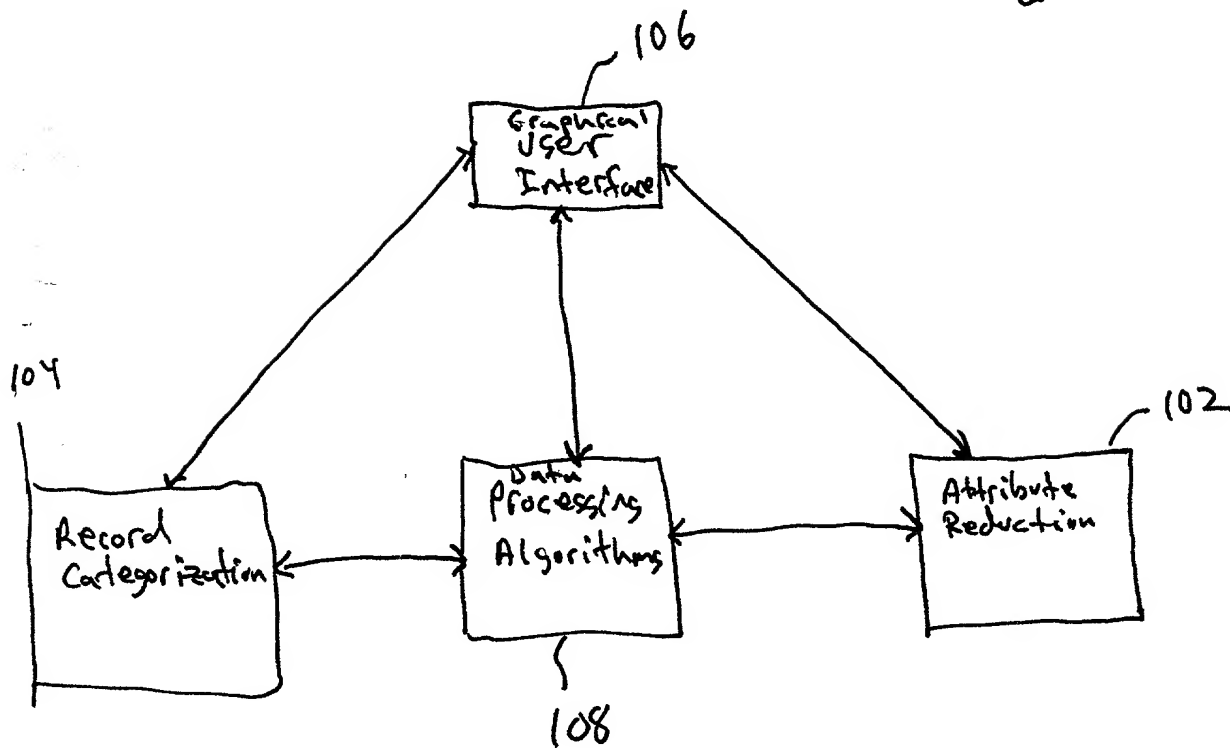


Figure 1

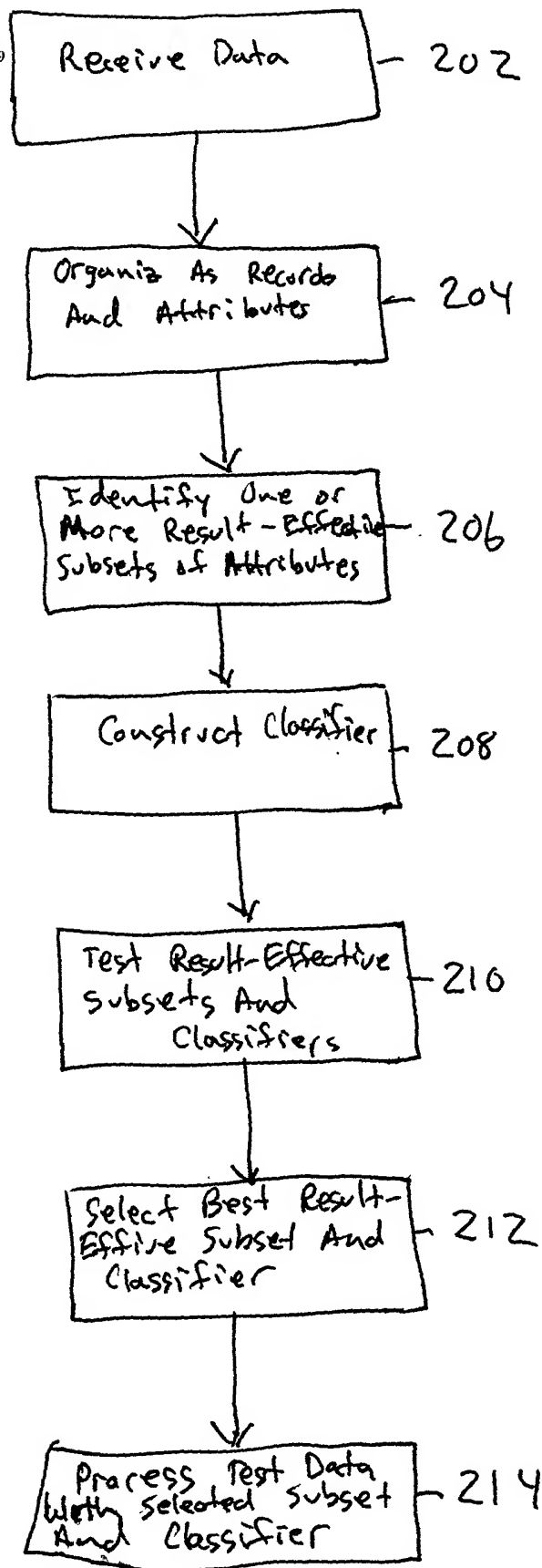


Figure 2



30

Contact: John V. Bianco 617-248-7870  
Express Mail Label No. EV072530498US

Contact: John V. Bianco  
Express Mail Label N

Contact: John V. Bianco 617-248-7870  
Express Mail Label No. EY032328183

Contact: John V. Bianco 617-248-7870  
Express Mail Label No. EV072530498US

306

Record

2718917

205

205120-222200F

304

# Variable 4

Variable 1	Variable 2	Variable 3	Variable 4	Variable 5	Variable 6	Variable 7	Variable 8	Variable 9	Variable 10	Variable 11	Variable 12	Variable 13	Variable 14	Variable 15	Variable 16
B	D	F	1.99	20.80	86	B	1.98	1.60	A	0.30	1.53	1.95	0.95	3.33	495
A	A	B	2.21	16.00	96	D	2.65	2.33	A	0.26	1.98	4.70	1.04	3.59	1035
B	D	F	1.99	19.00	92	B	2.36	2.04	A	0.39	2.08	2.70	0.86	3.02	312
A	A	A	2.67	18.60	101	C	2.80	3.24	B	0.30	2.81	5.68	1.03	3.17	1185
A	A	B	2.70	22.50	101	C	3.00	3.25	A	0.29	2.38	5.70	1.19	2.71	1285
B	D	E	2.42	22.00	86	B	1.45	1.25	A	0.50	1.63	3.60	1.05	2.65	450
B	D	F	2.02	19.00	80	B	1.65	2.03	B	0.37	1.63	3.40	1.00	3.17	510
A	A	B	2.55	18.00	98	C	2.45	2.43	A	0.29	1.44	4.25	1.12	2.51	1105
A	B	C	2.60	17.20	94	C	2.45	2.99	A	0.22	2.29	5.60	1.24	3.37	1265
B	D	F	2.17	21.00	85	B	2.60	2.65	B	0.37	1.35	2.76	0.86	3.28	378

LOW HIGH

Figure 4A

2218917

306

402a 402b 402c

205120-2592200T

304

# Variable 2

400

406

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B	D	F	1.99	20.80	86	B	1.98	1.60	A	0.30	1.53	1.95	0.95	3.33	495
A		B	2.21	16.00	96	D	2.65	2.33	A	0.26	1.98	4.70	1.04	3.59	1035
B	D	F	1.94	19.00	92	B	2.36	2.04	A	0.39	2.08	2.70	0.86	3.02	312
A		A	2.67	18.60	101	C	2.80	3.24	B	0.30	2.81	5.68	1.03	3.17	1185
A		B	2.70	22.50	101	C	3.00	3.25	A	0.25	2.38	5.70	1.19	2.71	1285
B	D	E	2.42	22.00	86	B	1.45	1.25	A	0.50	1.63	3.60	1.05	2.65	450
B	D	F	2.12	19.00	80	B	1.65	2.03	B	0.37	1.63	3.40	1.00	3.17	510
A		B	2.55	18.00	98	C	2.45	2.43	A	0.29	1.44	4.25	1.12	2.51	1105
A	E	C	2.60	17.20	94	C	2.45	2.99	A	0.22	2.29	5.60	1.24	3.37	1265
B	D	F	2.17	21.00	85	B	2.60	2.65	B	0.37	1.35	2.76	0.86	3.28	378

LOW HIGH

402

402a 402b 402c

306

Figure 4B

2218917

205120" 2694200T

304

# All Columns

400

Sheet 6 of 79

Title: Method And System For Data Analysis  
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308

B	D	F	1.99	20.80	86	B	1.98	1.60	Variable 1
B	D	B	2.21	16.00	96		2.65	2.33	Variable 2
B	D	F		19.00	92	B	2.36	2.04	Variable 3
			2.67	18.60	101	C	2.80	3.24	Variable 4
			2.70	22.50	101	C	3.00	3.25	Variable 5
B	D	E	2.42	22.00	86	B	1.63	1.63	Variable 6
B	D	F	2.12	19.00	80	B	1.63	1.63	Variable 7
			2.55	18.00	98	C	2.45	2.43	Variable 8
			2.60	17.20	94	C	2.45	2.99	Variable 9
B	D	F	2.17	21.00	86	B	2.60	2.65	Variable 10
									Variable 11
									Variable 12
									Variable 13
									Variable 14
									Variable 15
									Variable 16

LOW HIGH

402

402a 402b 402c

Figure 4C

306

2218917



Completed view  
 with numbers  
 removed

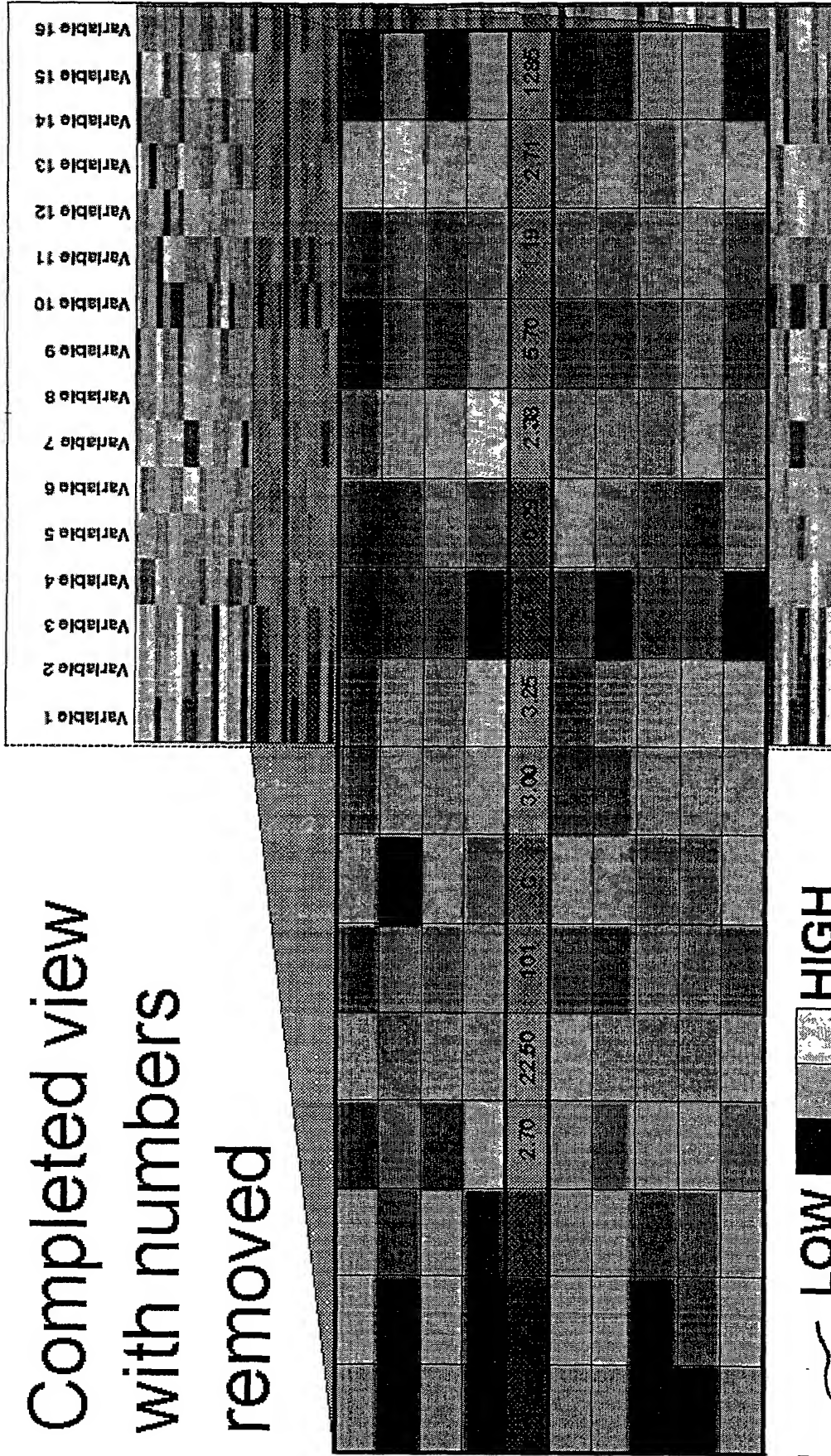


Figure 4D

2218917

306

402

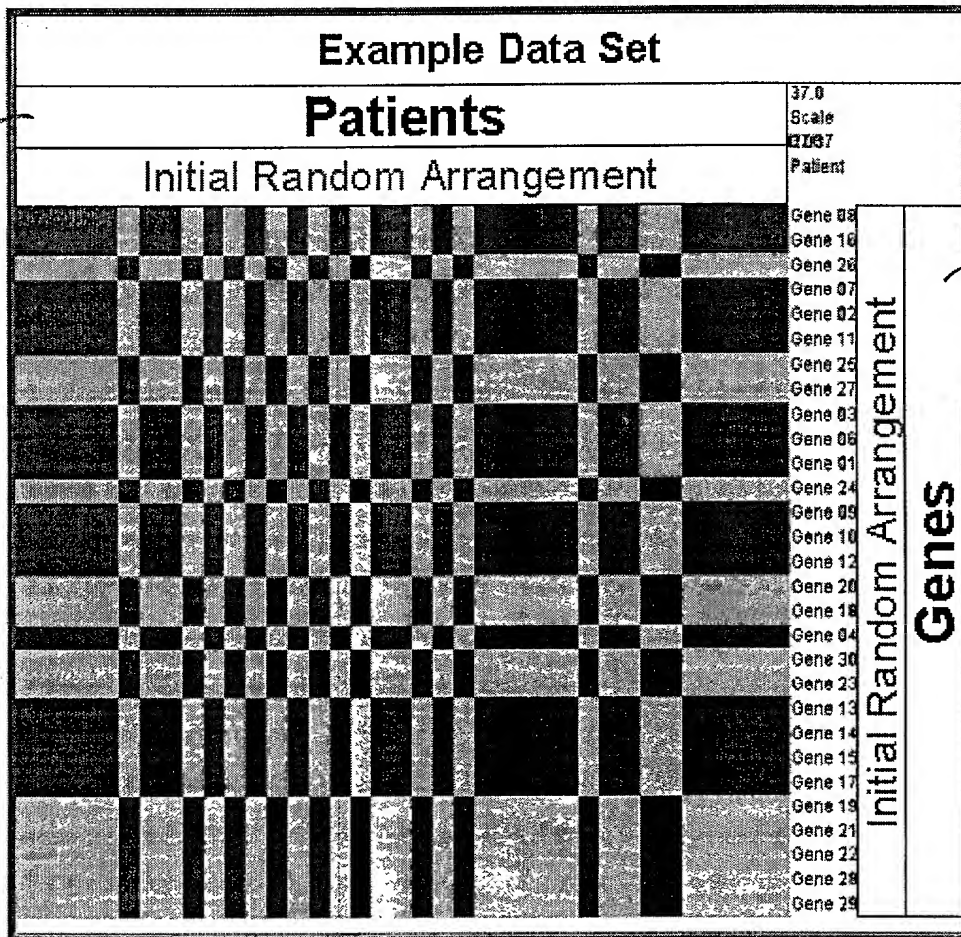
402a 402b 402c

# Ideal Case

## Random

500

502



504

Figure 5A

# Ideal Case

## Sorted by Patients

500

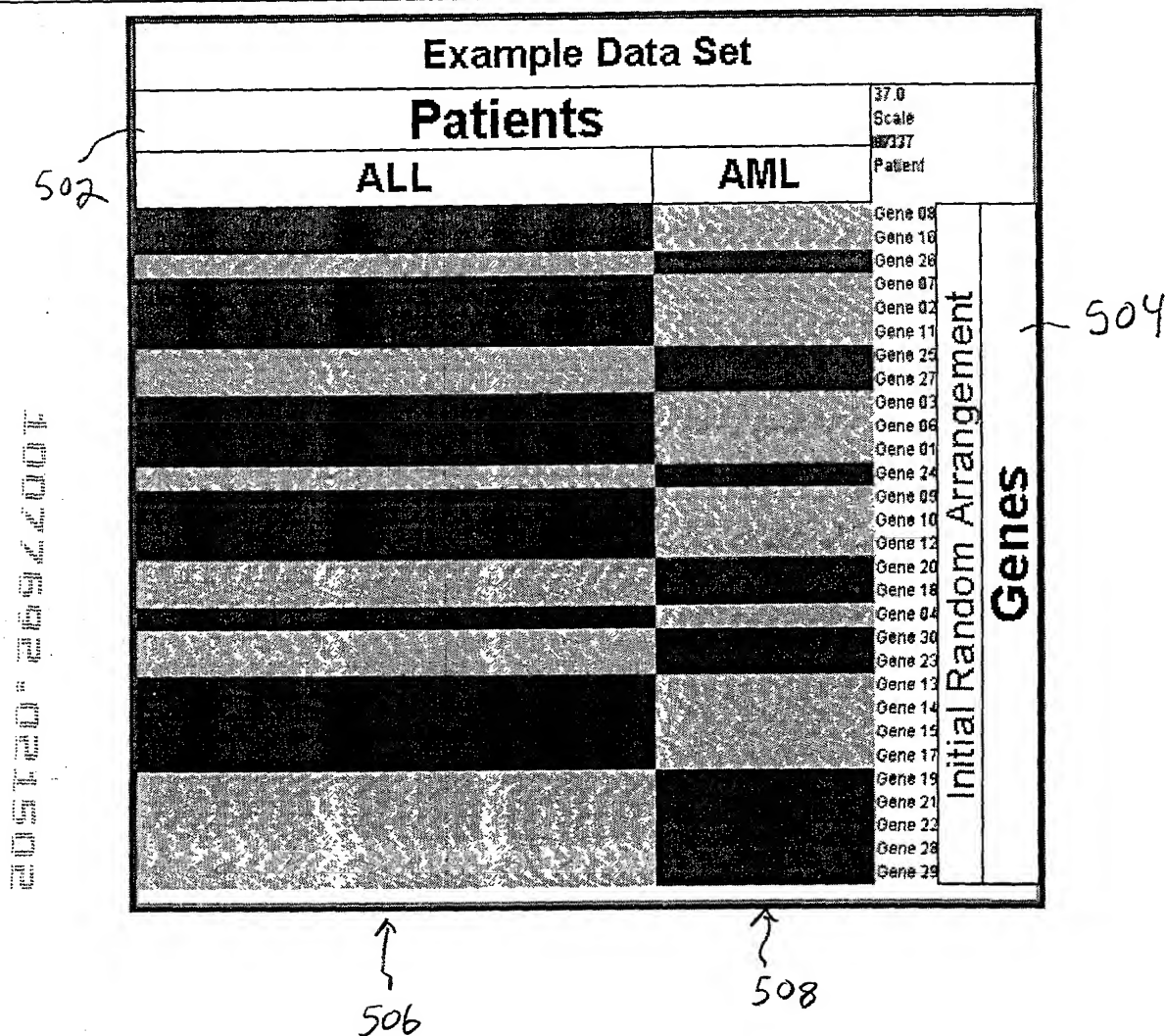


Figure 5B

2218917

# Ideal Case

## Grouped on Genes

500

502

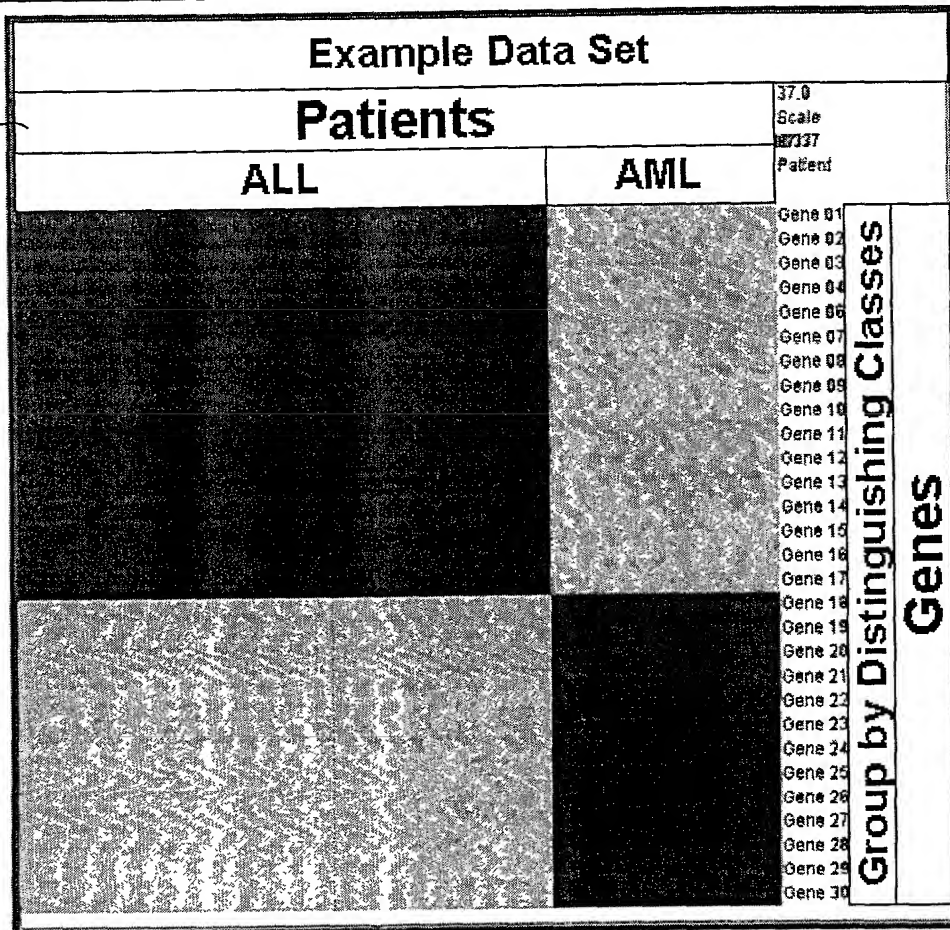


Figure 5C

2218917

5 C



# Random

600

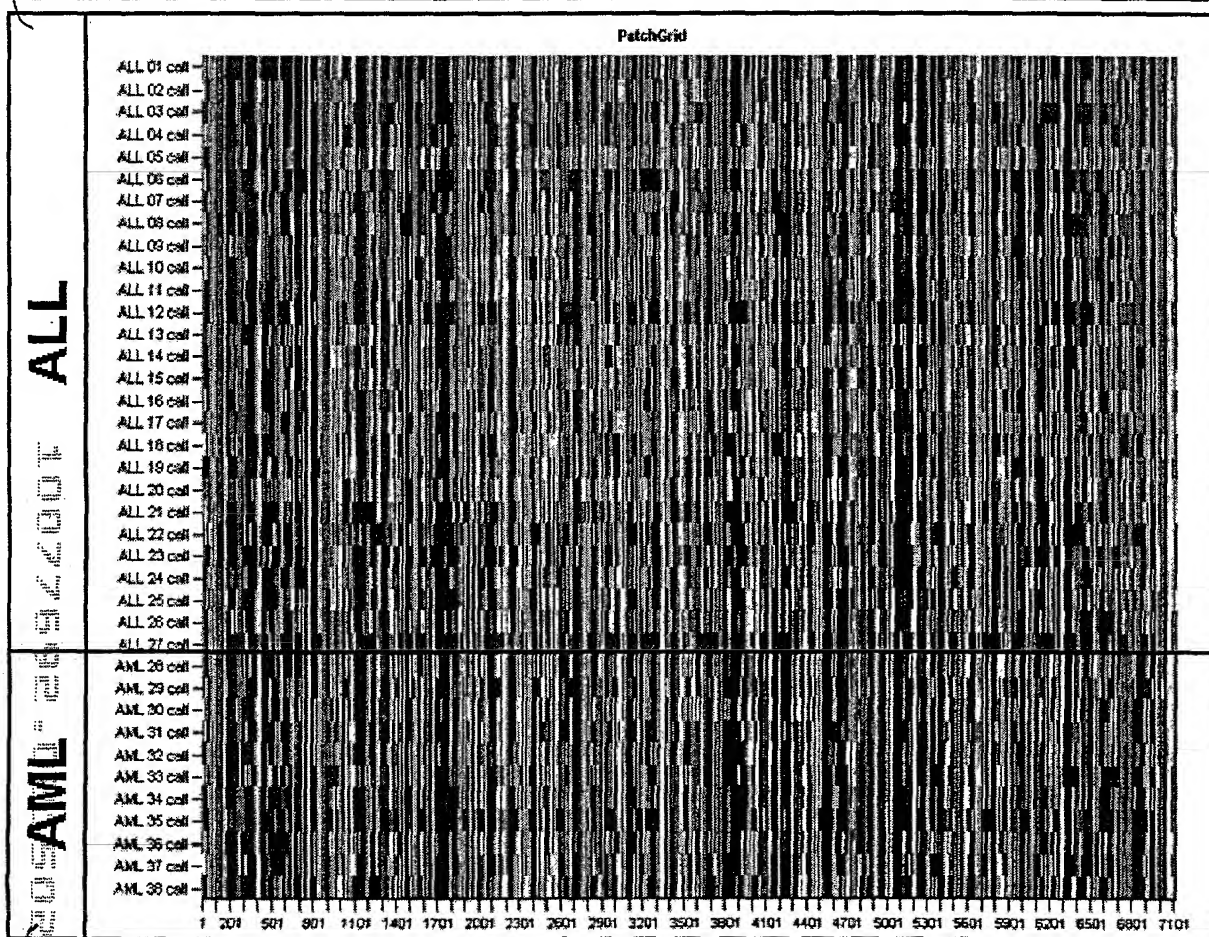


Figure 6A

2218917

5A

12/17/01

# Sort 1<sup>st</sup> Dimension

606

602a

610

600

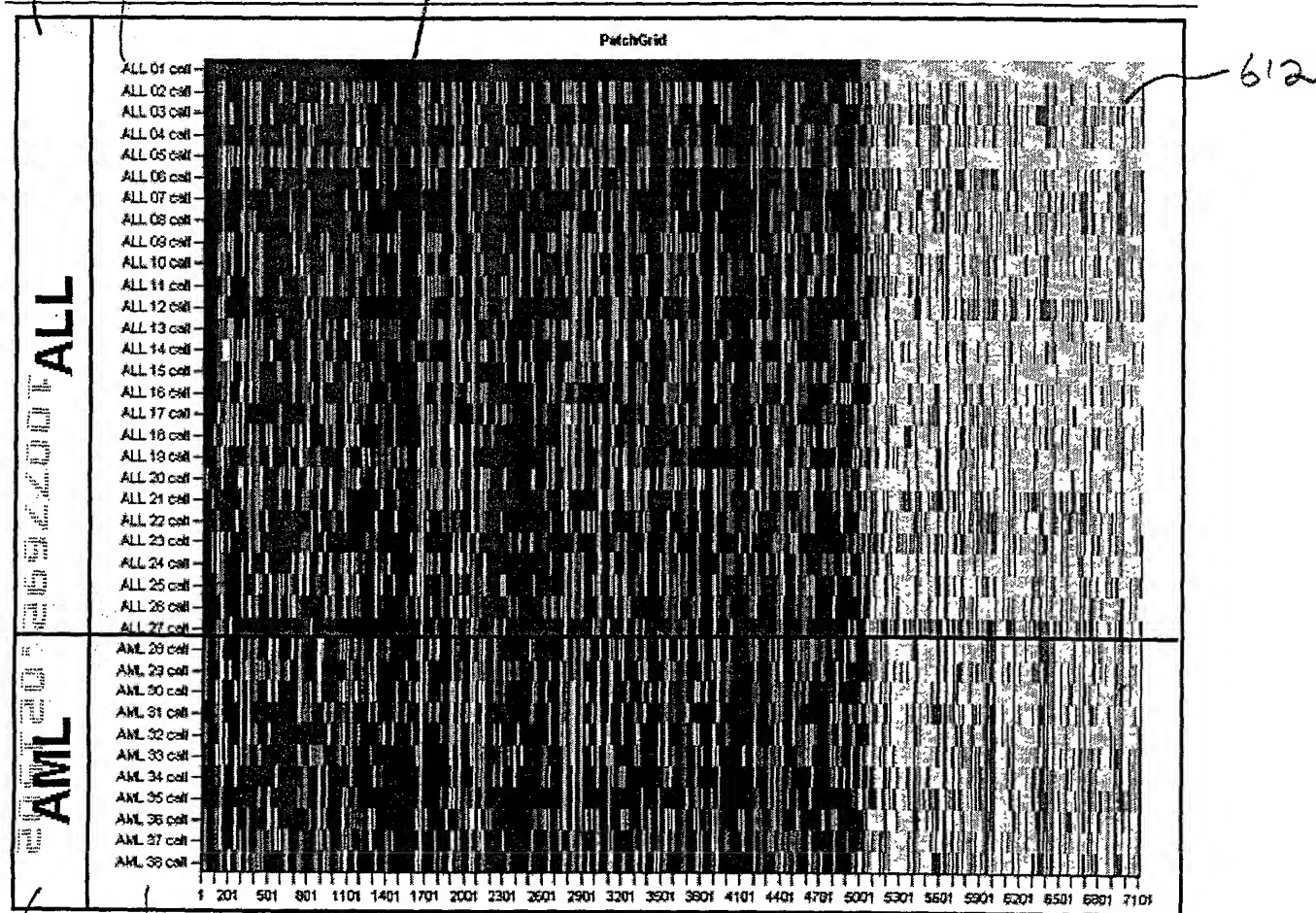


Figure 6B

2218917

600

# Sort 2<sup>nd</sup> Dimension

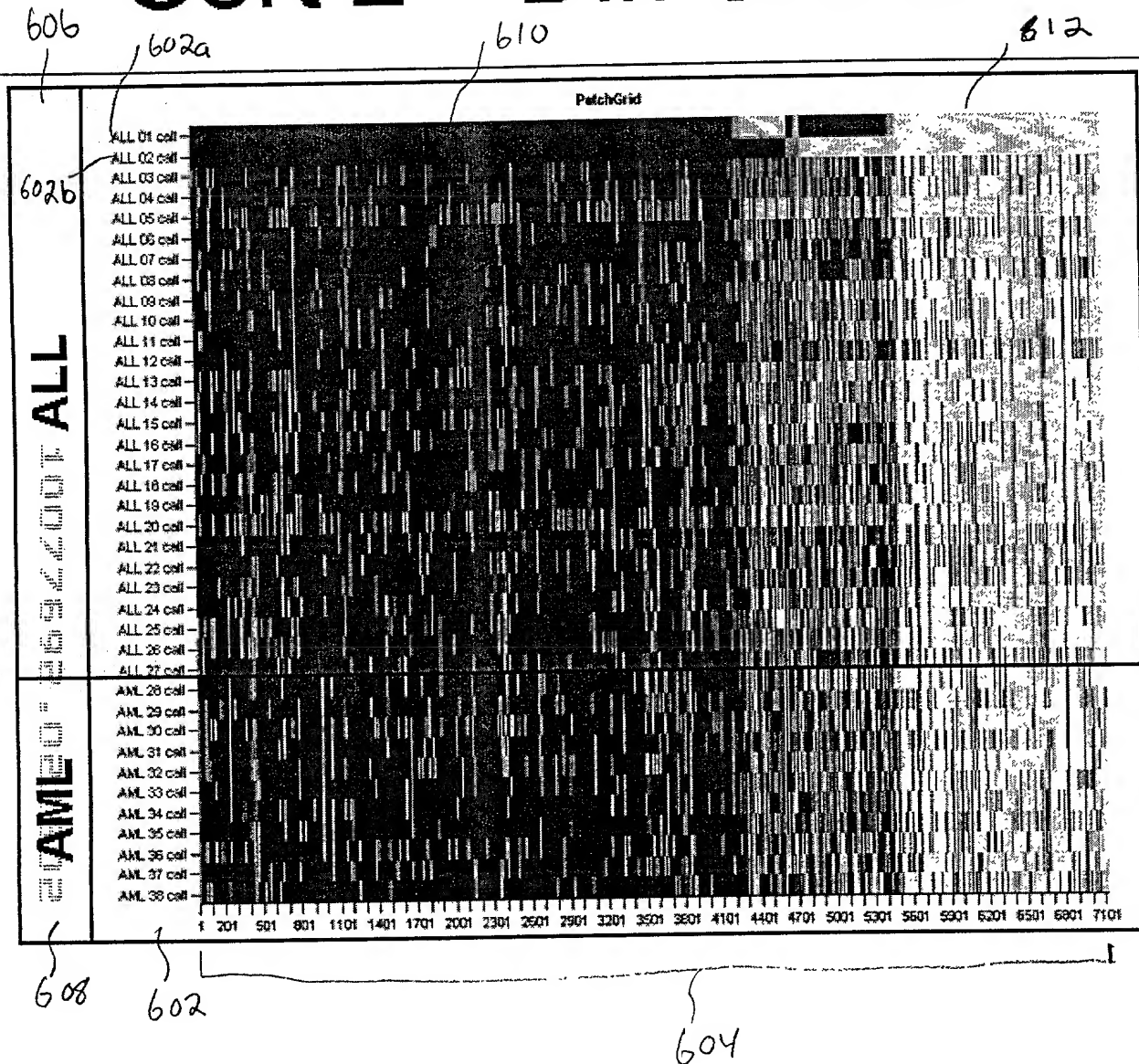


Figure 6C

2218917

6c

12/17/01

# Sorted 5 Dimensions

600

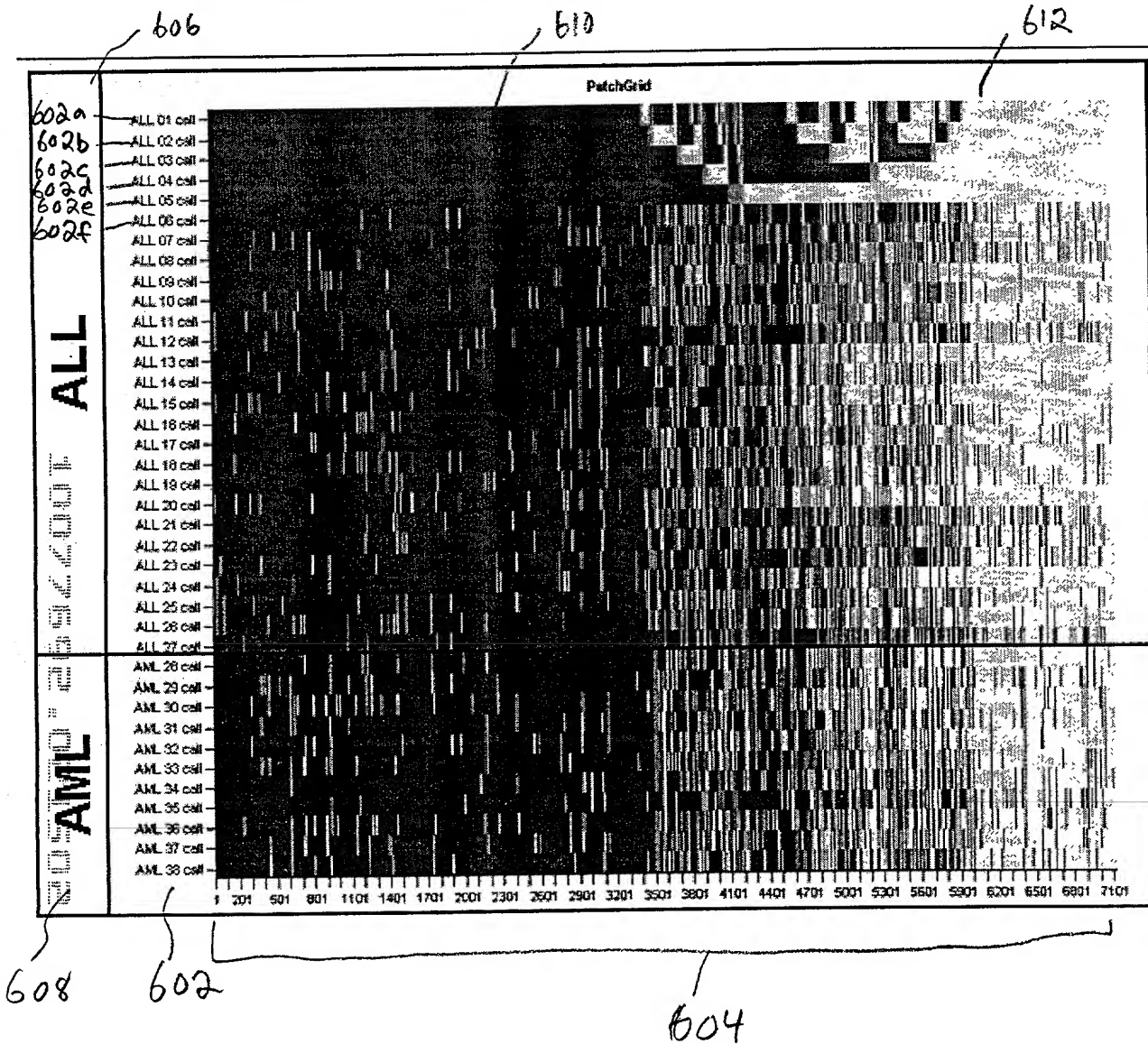


Figure 6D

2218917

(D)



# Sorted 33 Dimensions

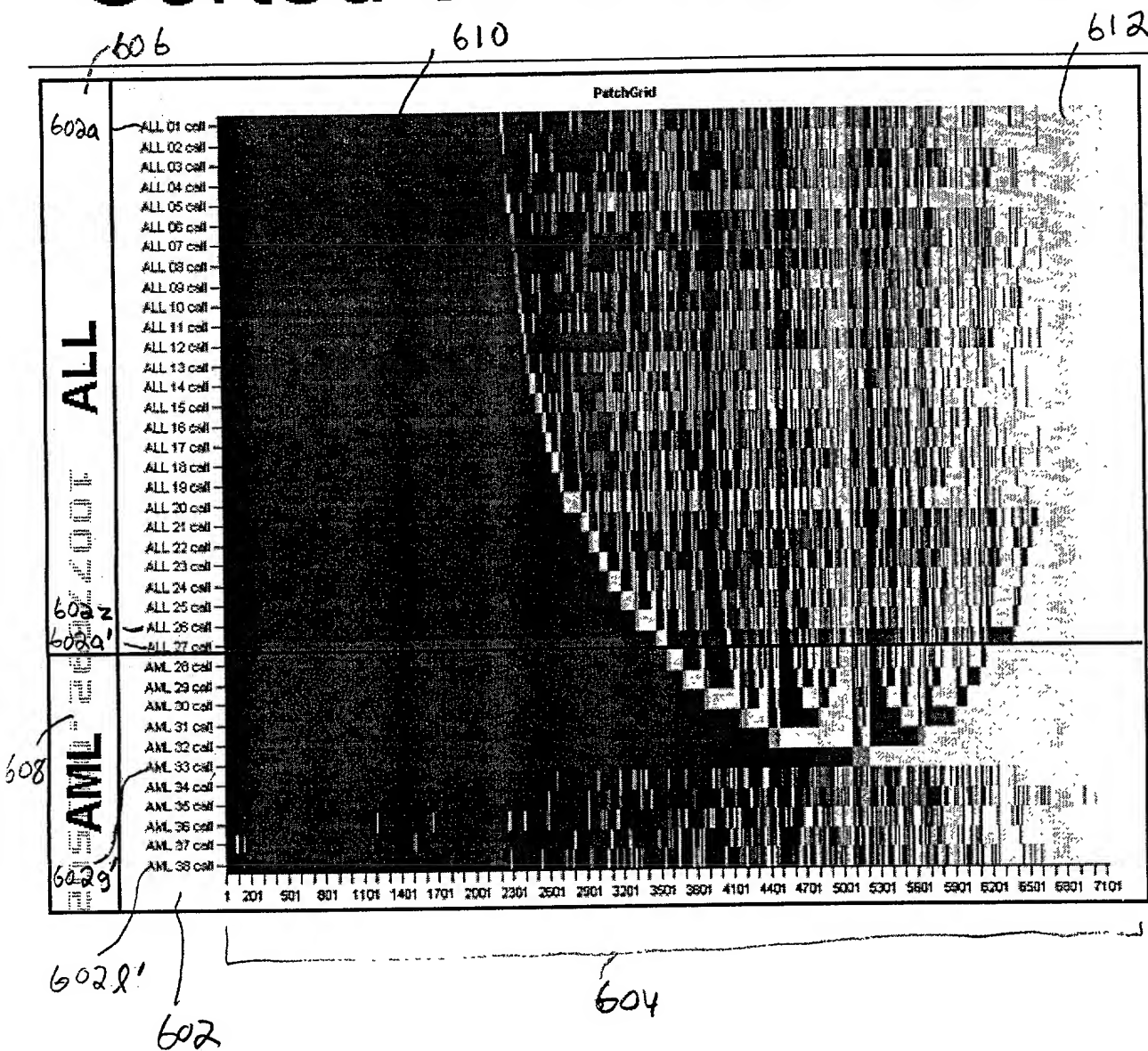


Figure 6E

2218917

# All Dimensions Sorted

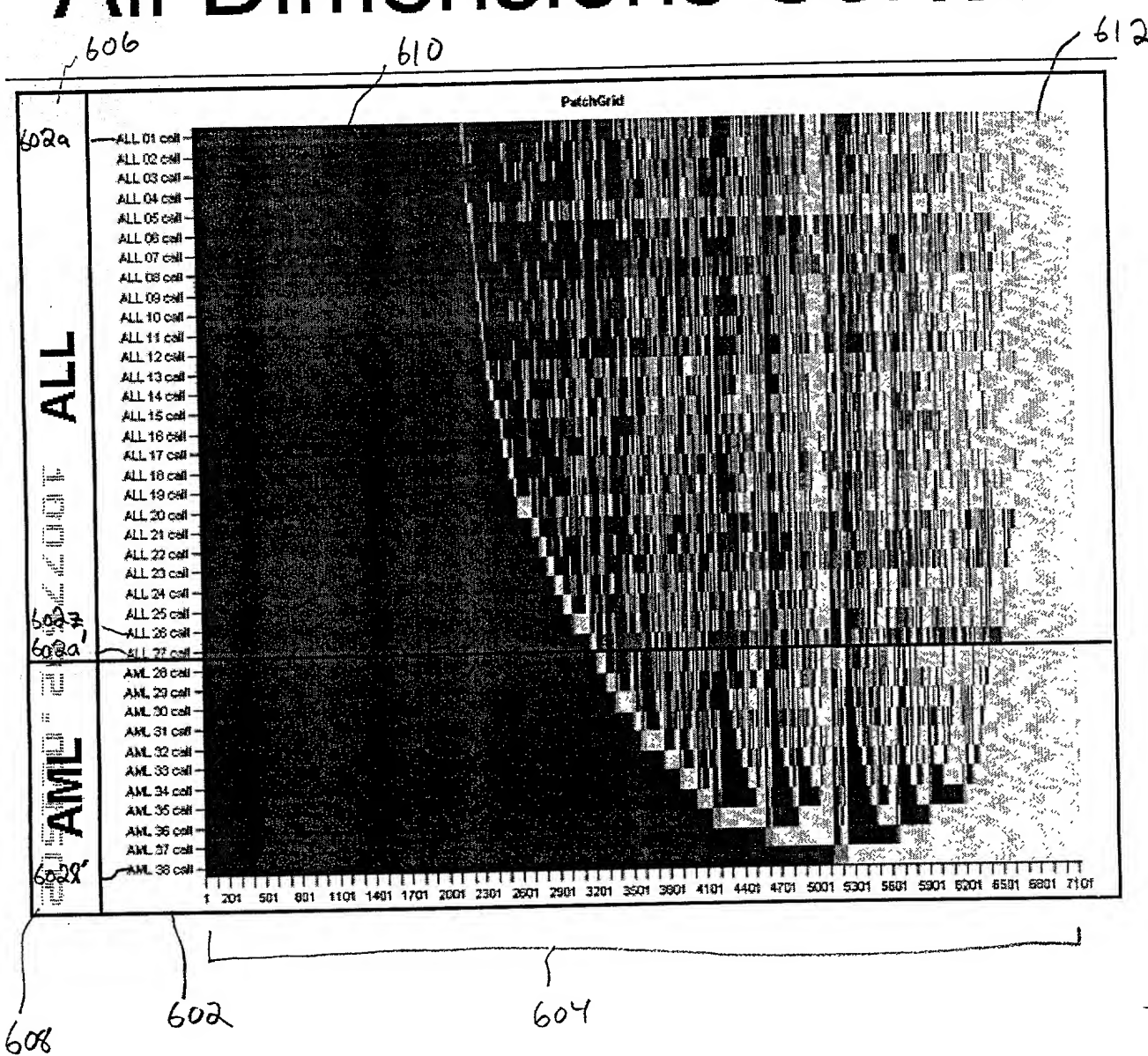
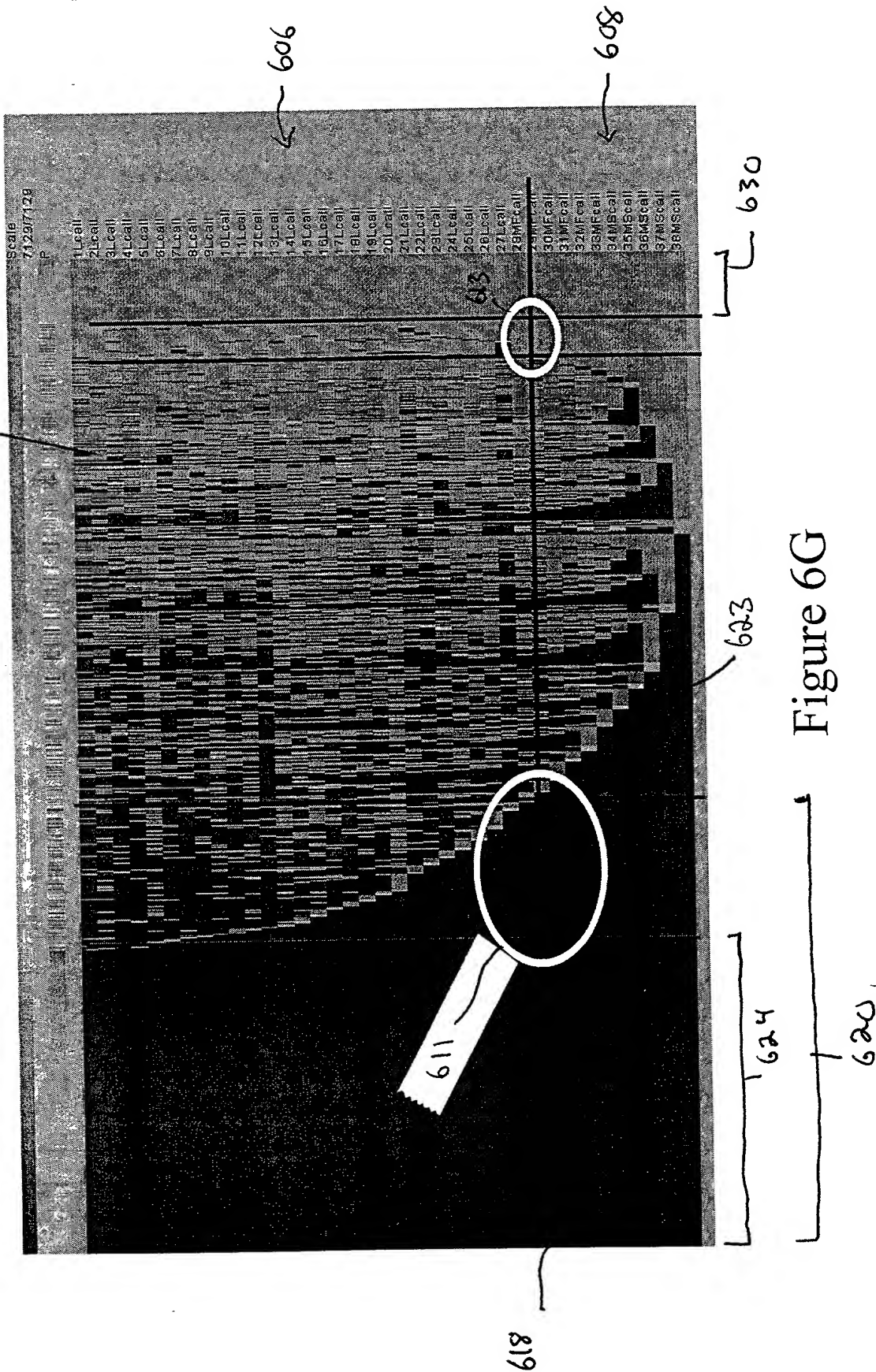


Figure 6F

2218917

6F





634 75

[illegible]



2054884

2054884

# Principal Uncorrelated Record Selection

Radviz

File Display Mapping Layout Selection Data

## Training Data Set

### Mark Related Records

PUR Selection

start threshold

adjust increment

final record count

Selects records that do not correlate highly with the currently marked records. If no records are marked, all records correlating with any other records will be marked.

OK

Cancel

range [-1, 1]

0.5

0.0

10

702

704

706

708

710

ALL 1

ALL 2

ALL 3

ALL 4

ALL 5

ALL 6

ALL 7

ALL 8

ALL 9

ALL 10

ALL 11

ALL 12

ALL 13

ALL 14

ALL 15

ALL 16

ALL 17

ALL 18

ALL 19

ALL 20

ALL 21

ALL 22

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ALL 87

ALL 88

ALL 89

ALL 90

ALL 91

ALL 92

ALL 93

ALL 94

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ALL 96

ALL 97

ALL 98

ALL 99

ALL 100

Figure 7

800

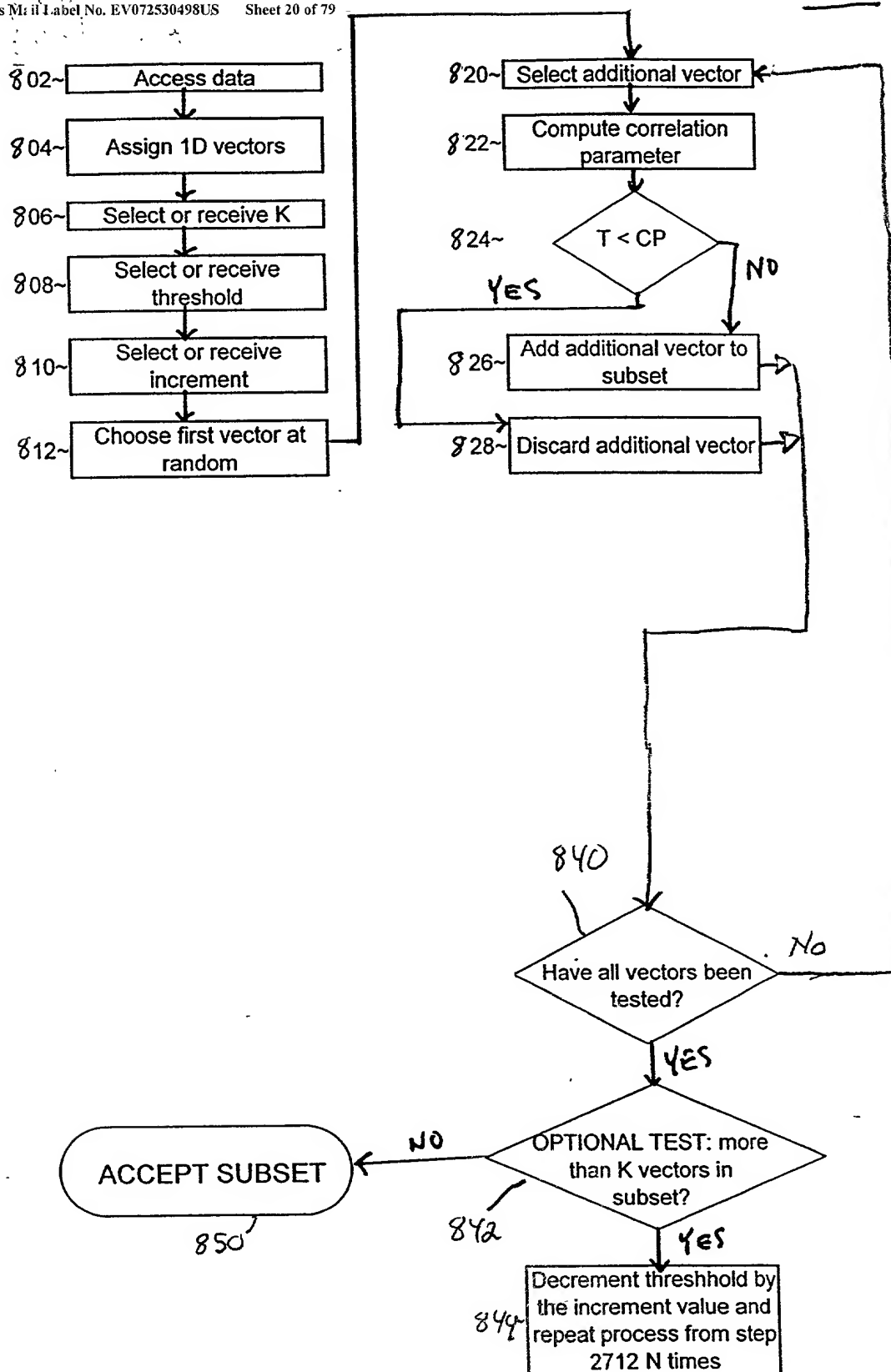


Figure 8

2268-791

4886522

# 76 Principal Uncorrelated Genes

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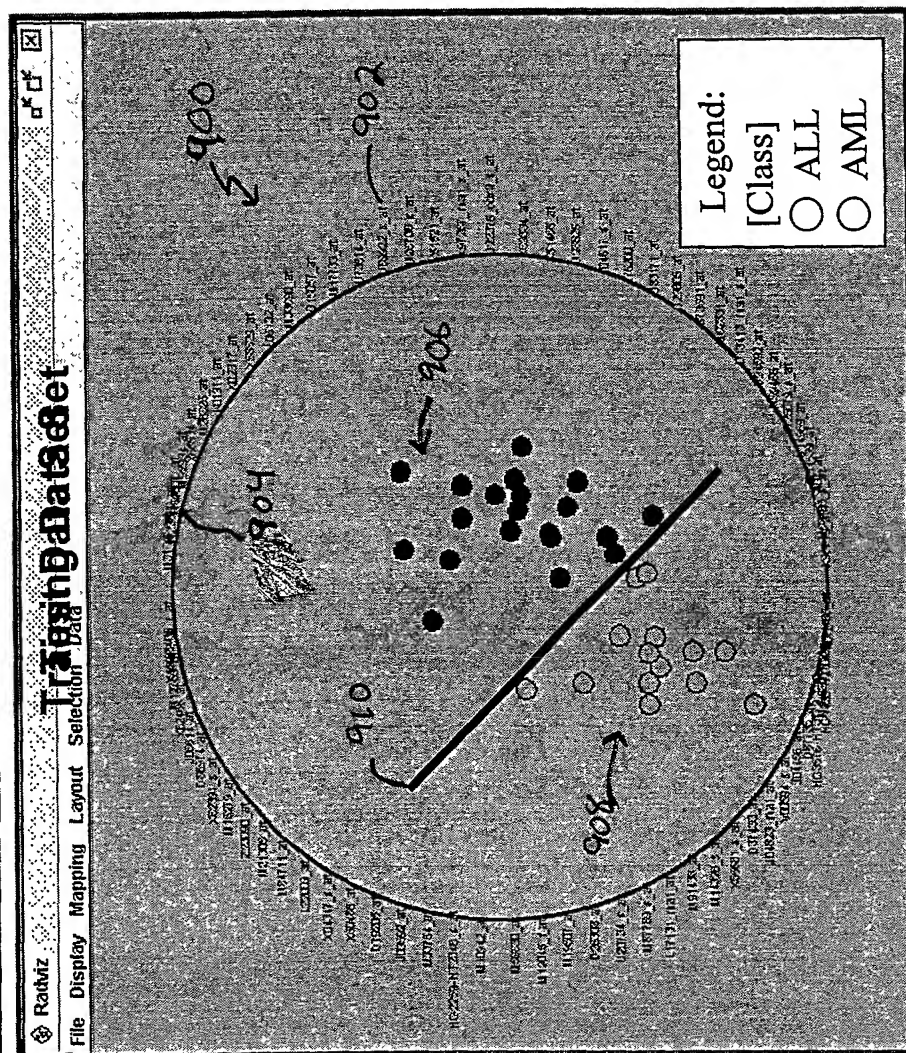


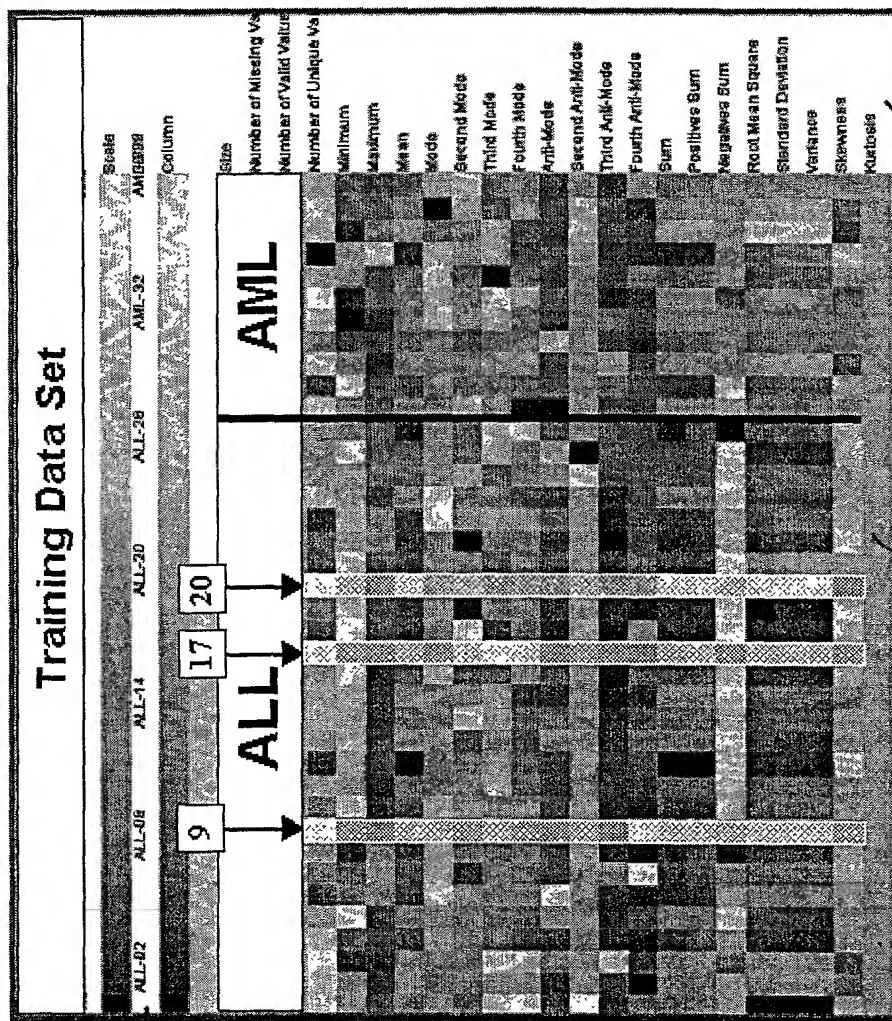
Figure 9

205720-269400F

# Statistical Metadata

(Affymetrix Absolute Data)

1000



602

1008



LOW HIGH

1004

Figure 10A

1002



# Pearson Correlation Coefficients

(Affymetrix Absolute Data)

1001  
22

Title: Method And System For Data Analysis  
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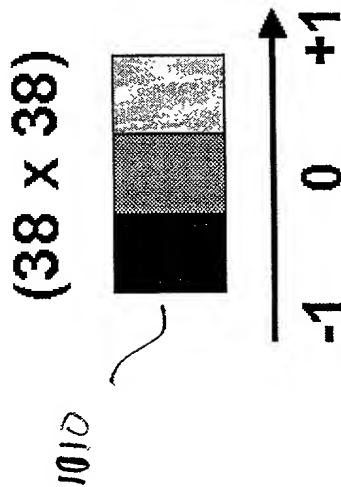
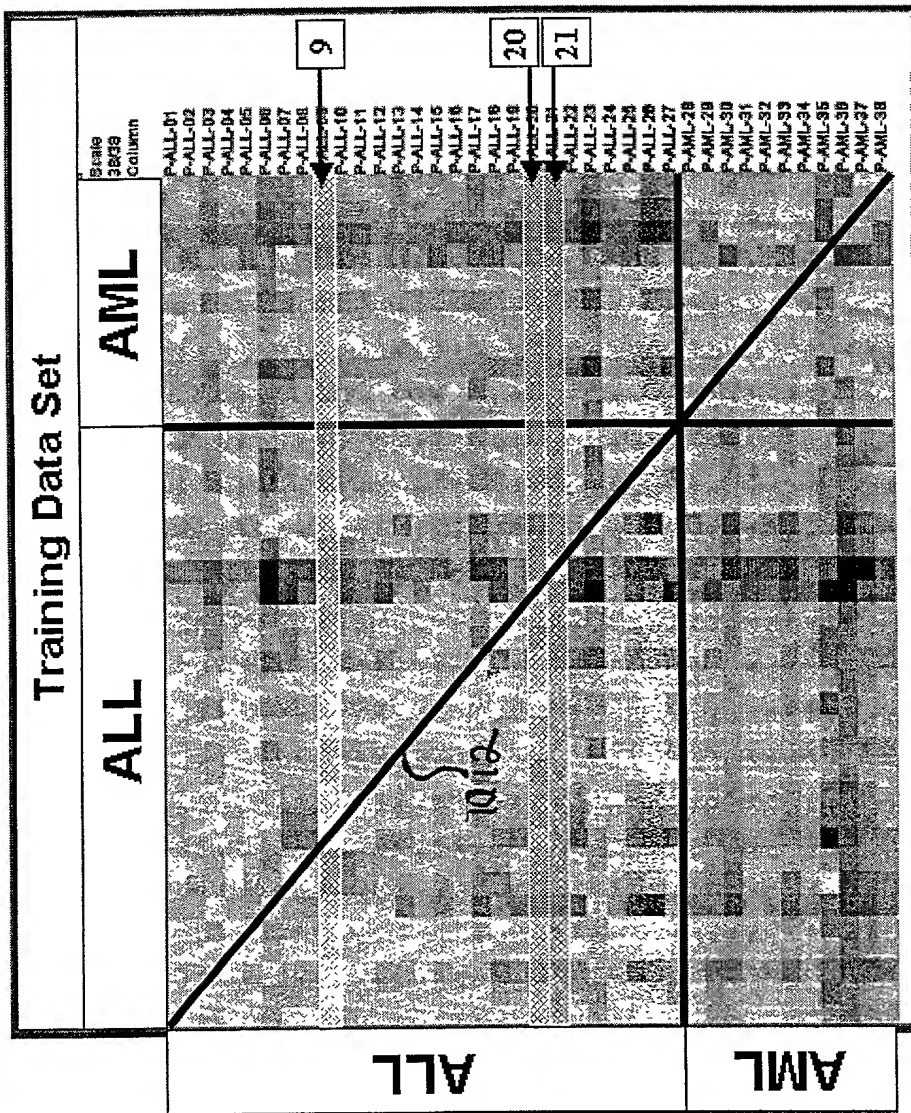
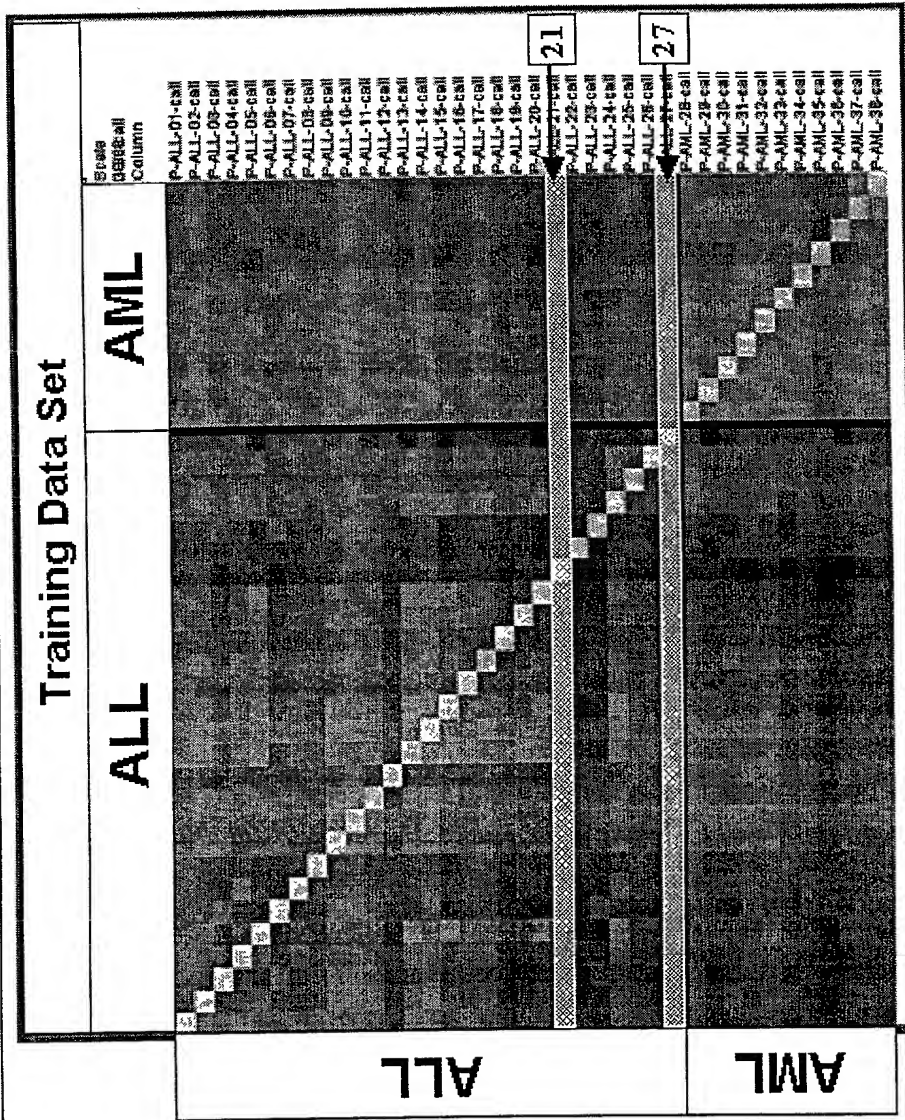


Figure 10B

2218917

# Pearson Correlation Coefficients (Affymetrix Comparative Data)

1003  
2



(38 x 38)

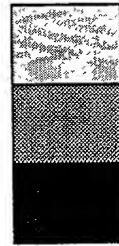


Figure 10C

2218917

# Final Result

[illegible]

11.00

306

## Example Record 20

**Final Result**

**Example Record 20**

Variable 16  
Variable 15  
Variable 14  
Variable 13  
Variable 12  
Variable 11  
Variable 10  
Variable 9  
Variable 8  
Variable 7  
Variable 6  
Variable 5  
Variable 4  
Variable 3  
Variable 2  
Variable 1

0.00 3.00 3.25 A 0.29 2.38 5.70 1.19 2.71 12.85

Figure 11A

2218917

# Sort - Variable 1

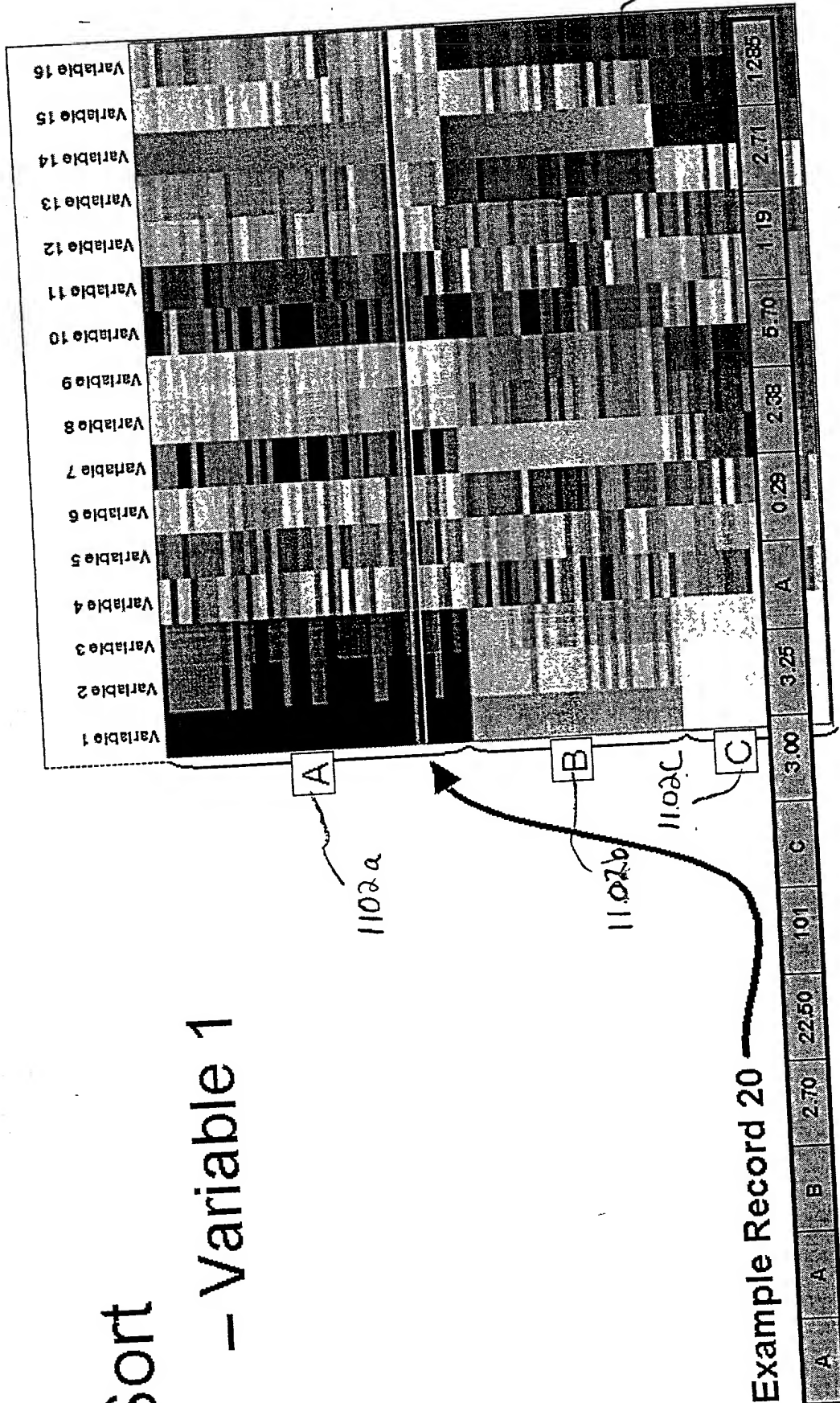


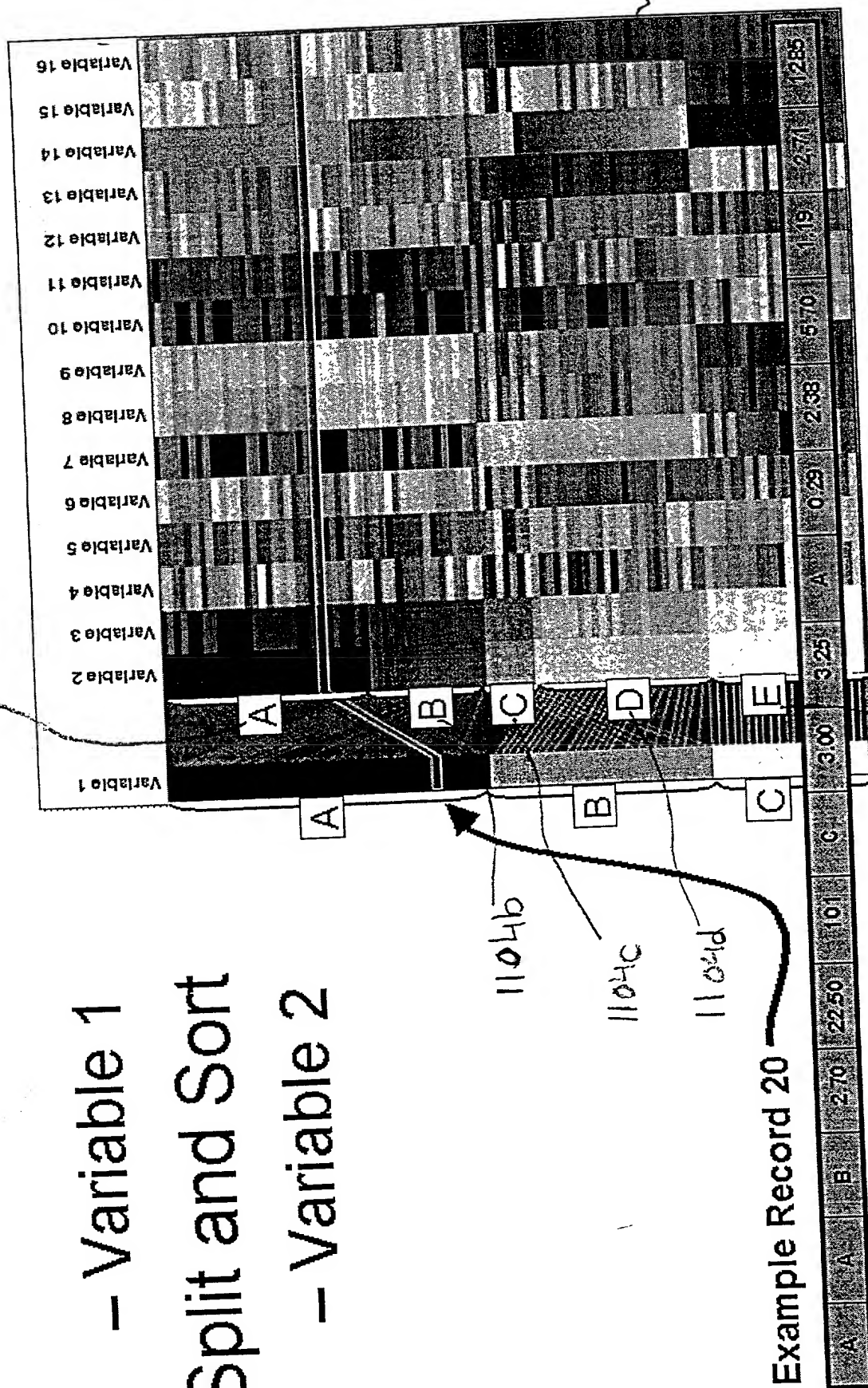
Figure 11b

2218917



# - Variable 1 Split and Sort - Variable 2

1104a



1104e Figure 11C

2218917

306

- Variable 1  
 - Variable 2  
 Split and Sort  
 - Variable 3

Example Record 20

A	A	B	2.70	22.50	101	C	3.00	3.25	0.29	2.38	5.70	1.19	2.71	1285
---	---	---	------	-------	-----	---	------	------	------	------	------	------	------	------

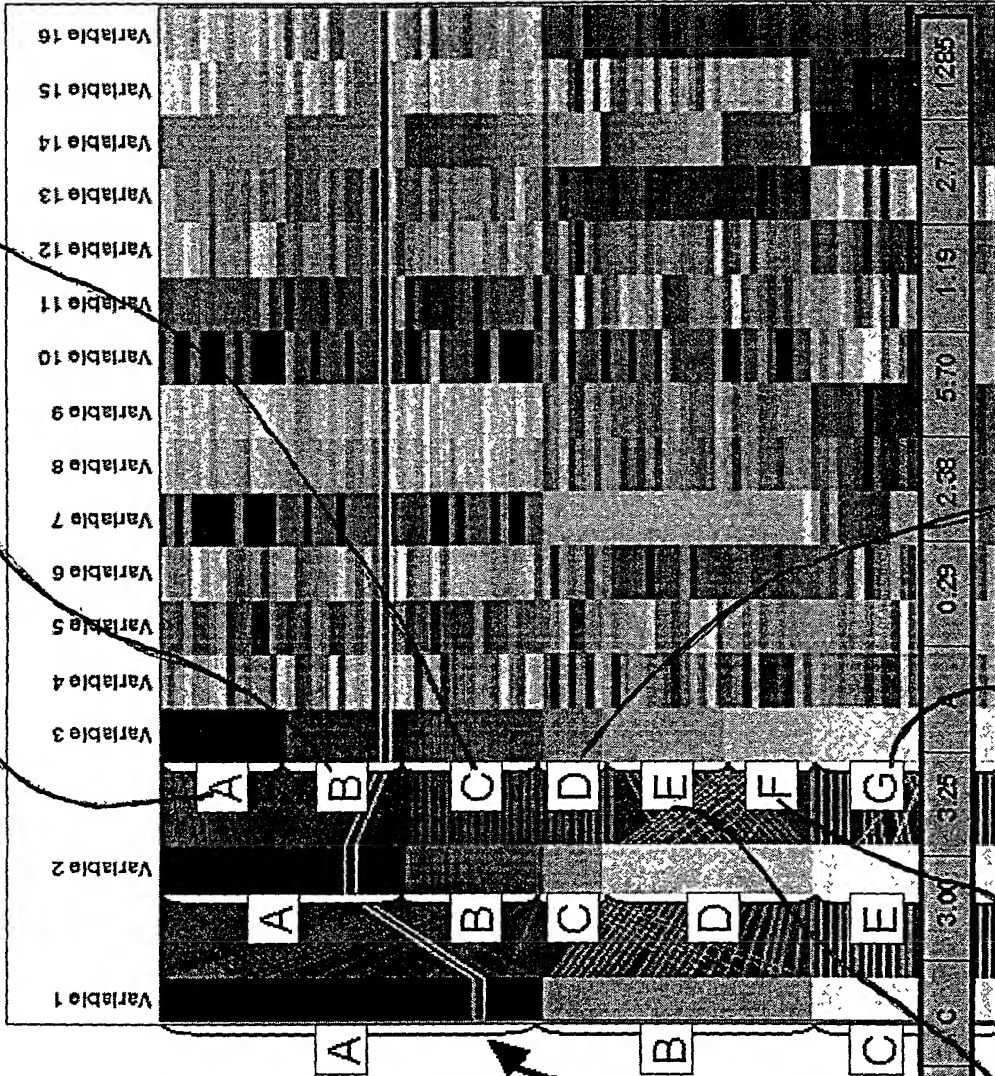


Figure 11D

2000-06-20 12:00

# Final Result

Title: Method And System For Data Analysis  
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Docket No. ANV-004  
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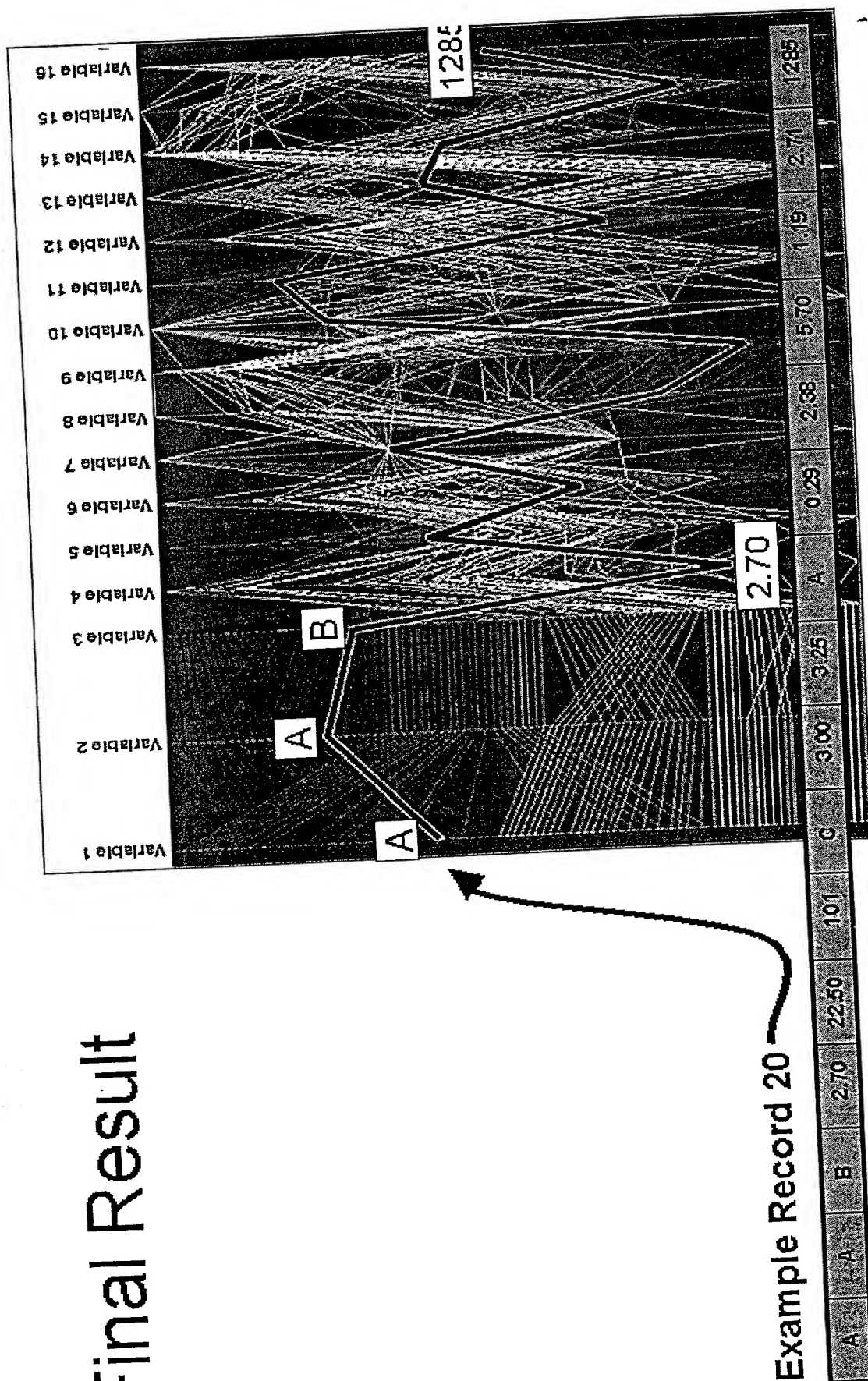


Figure 11E

2218917

# Example record showing the underlying connections

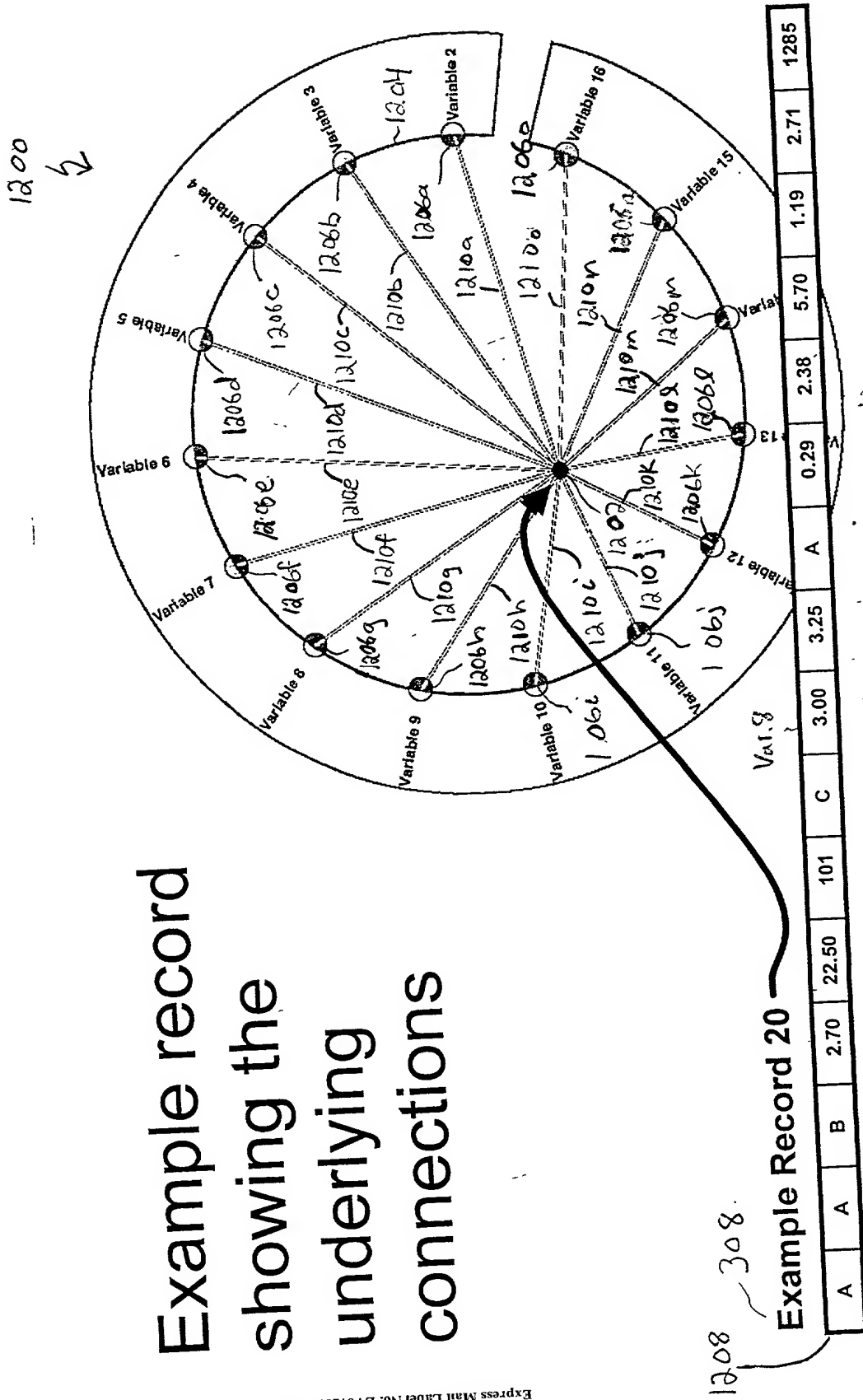


Figure 12A

1200  
2

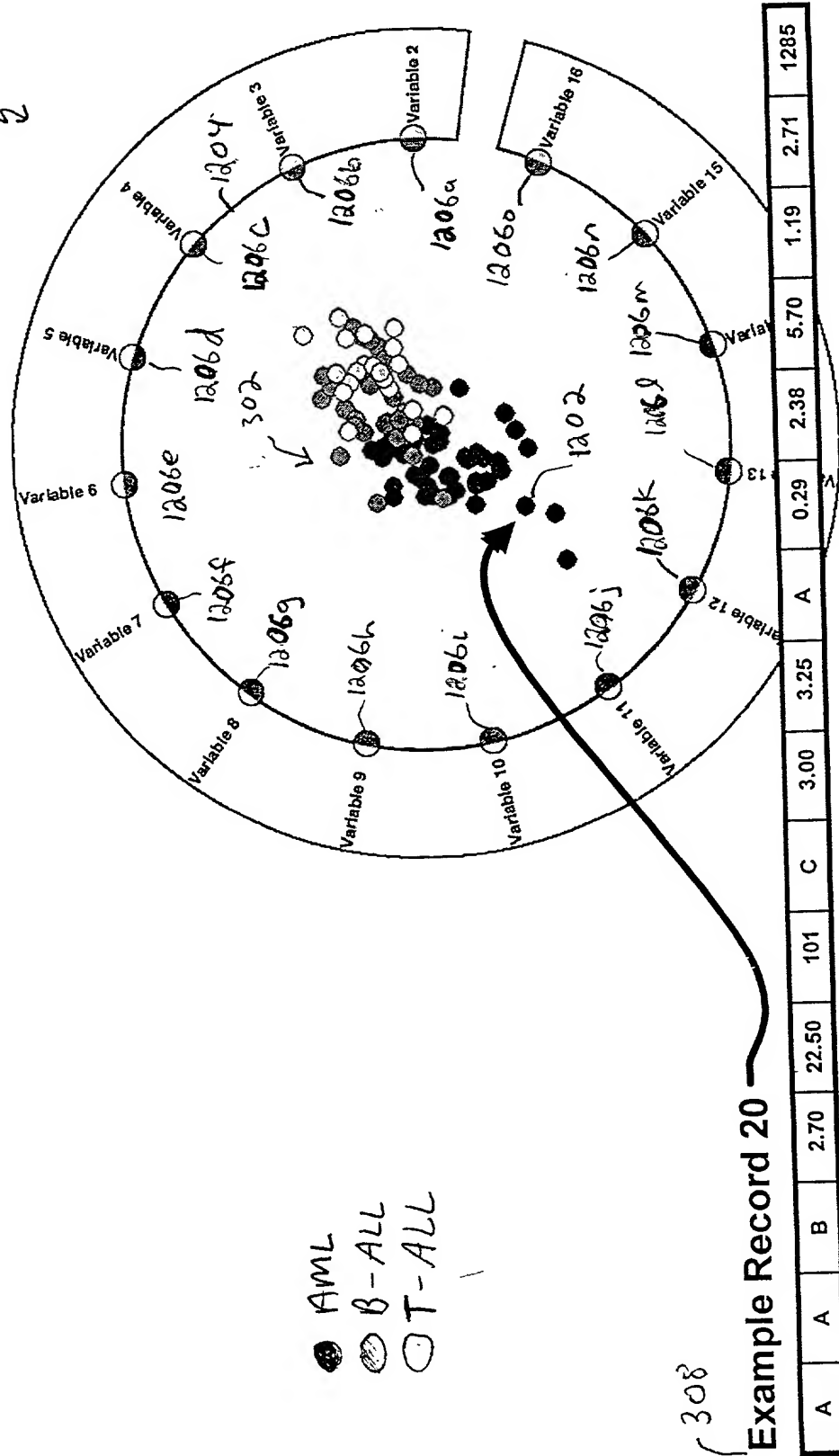


Figure 12B

2259888

# Visual Classifier

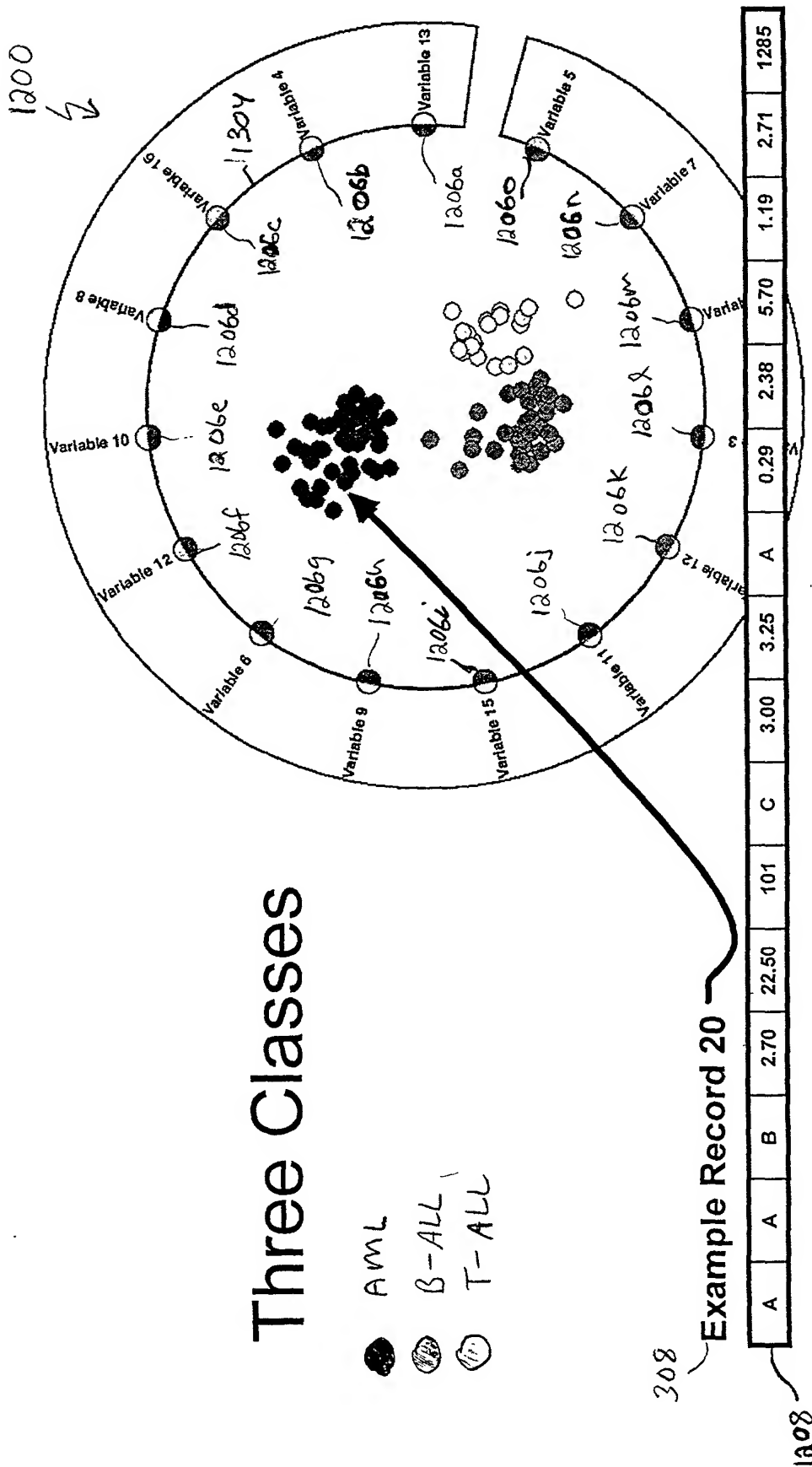


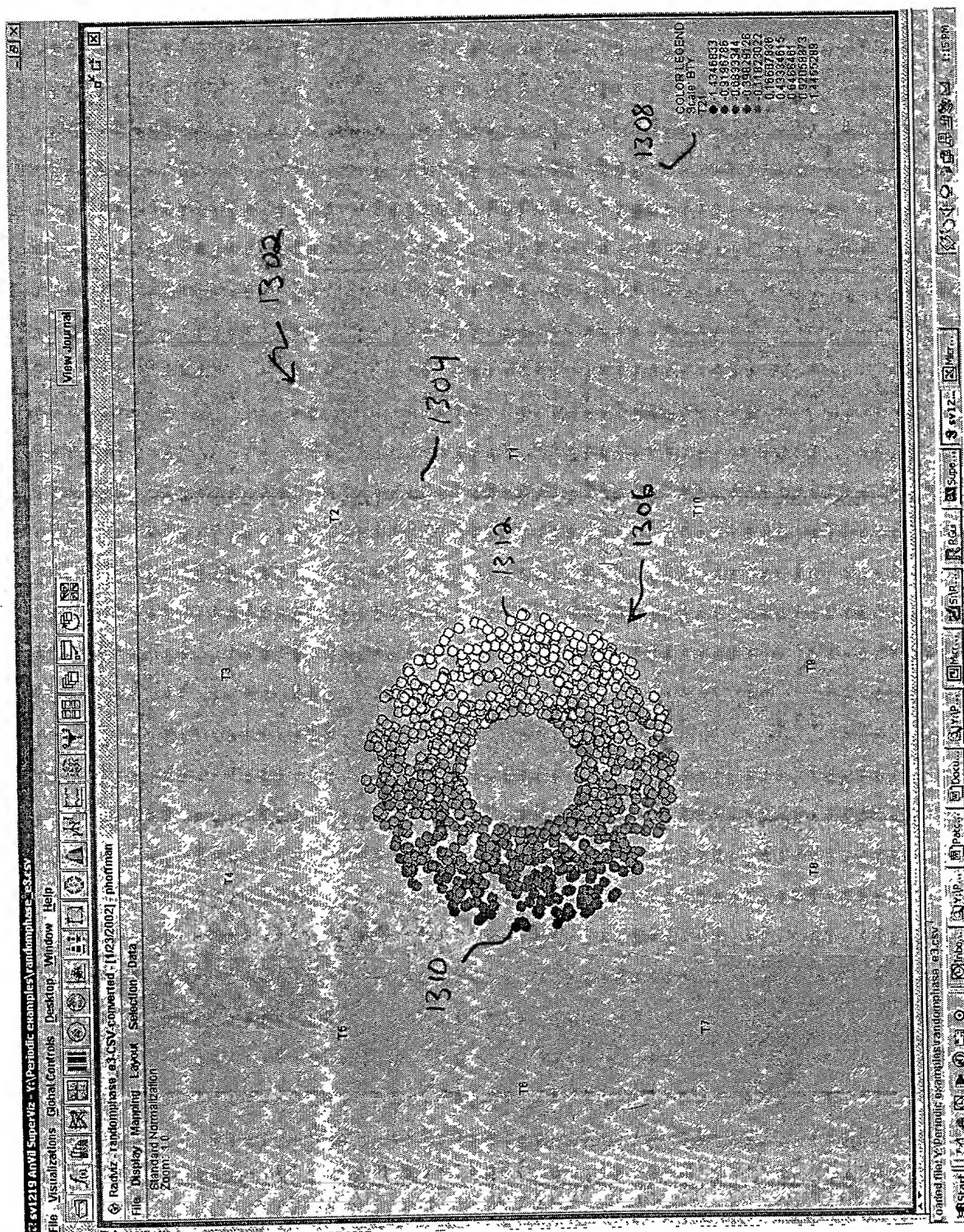
Figure 12C

2259888



2008 FEB 20 16:59:2008

1300



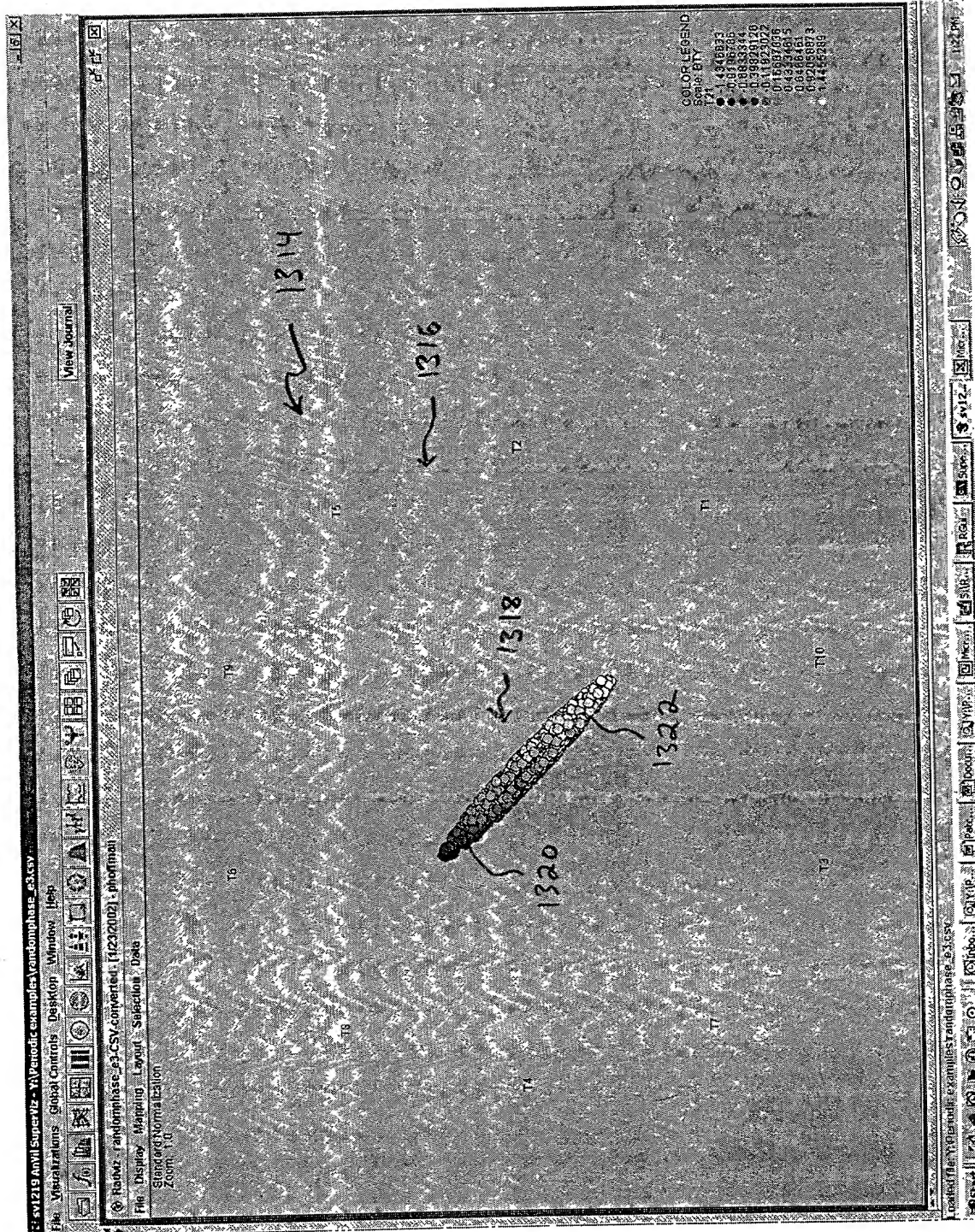


Figure 13B

2269307



205 F20 26922004

1303

Title: Method And System For Data Analysis  
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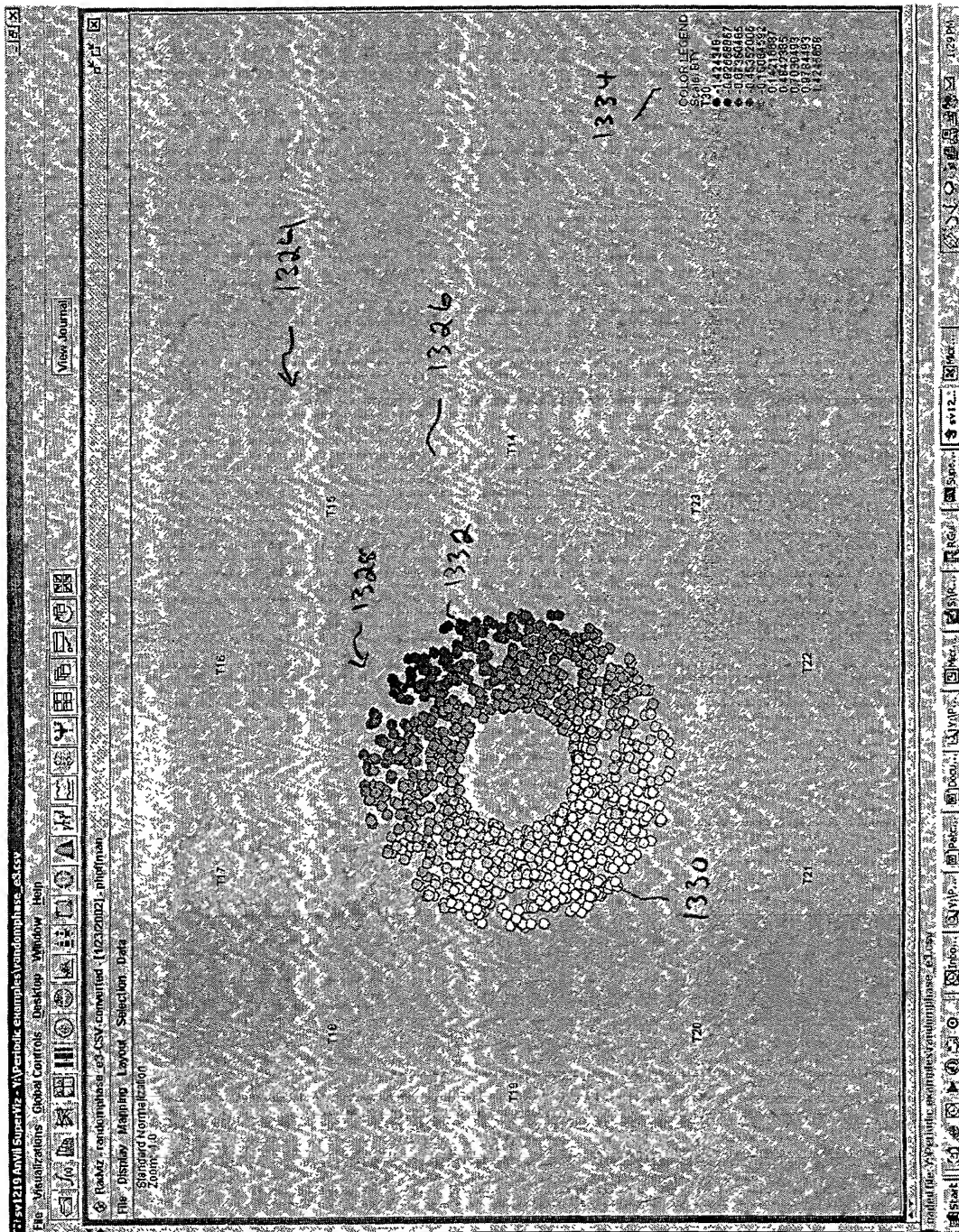


Figure 13C

226937

Title: **Method And System For Data Analysis**  
Inventor(s): Hoffman  
Serial No. Not yet assigned  
Docket No. ANV-004  
Contact: John V. Bianco 617-248-7870  
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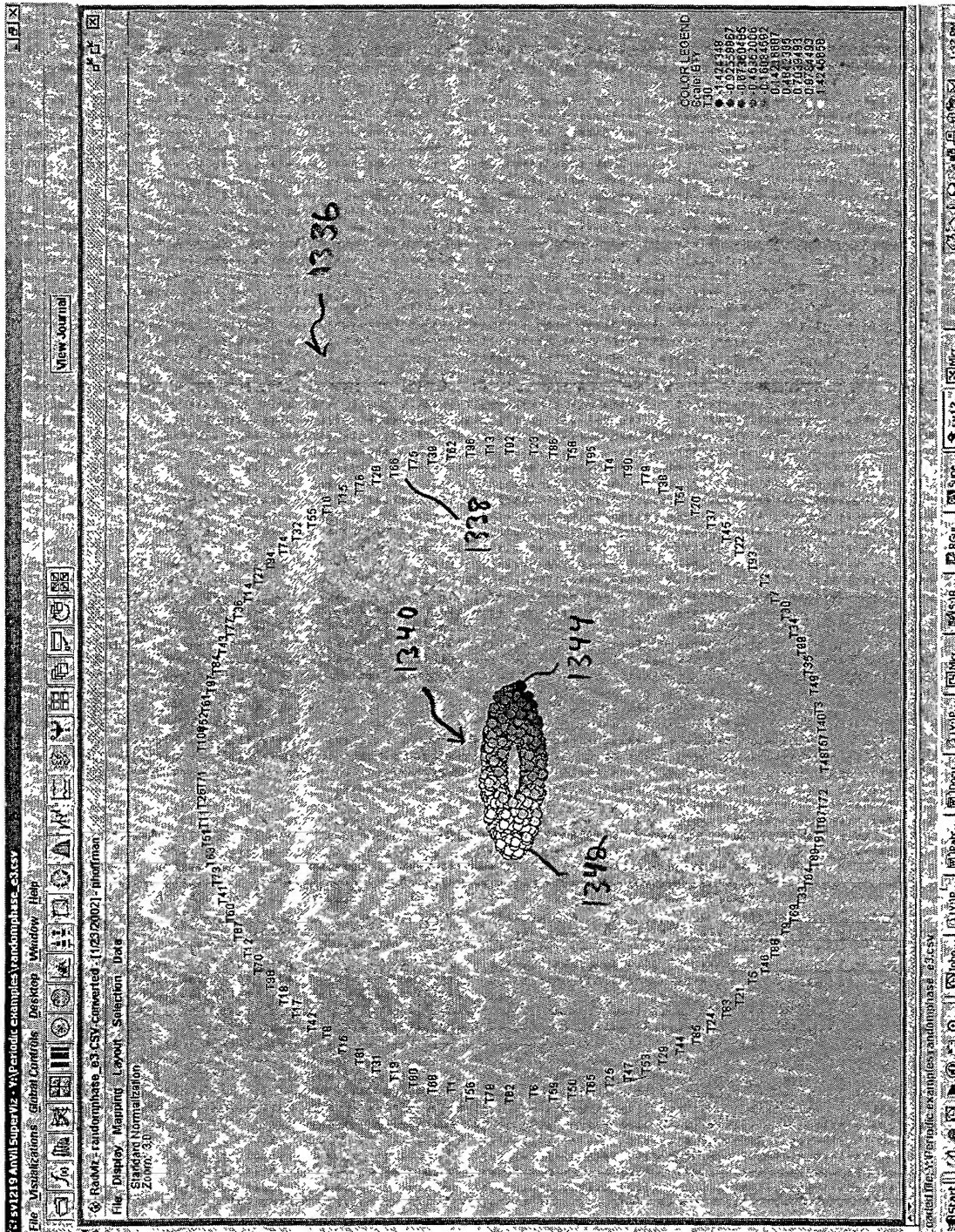


Figure 13D

226937



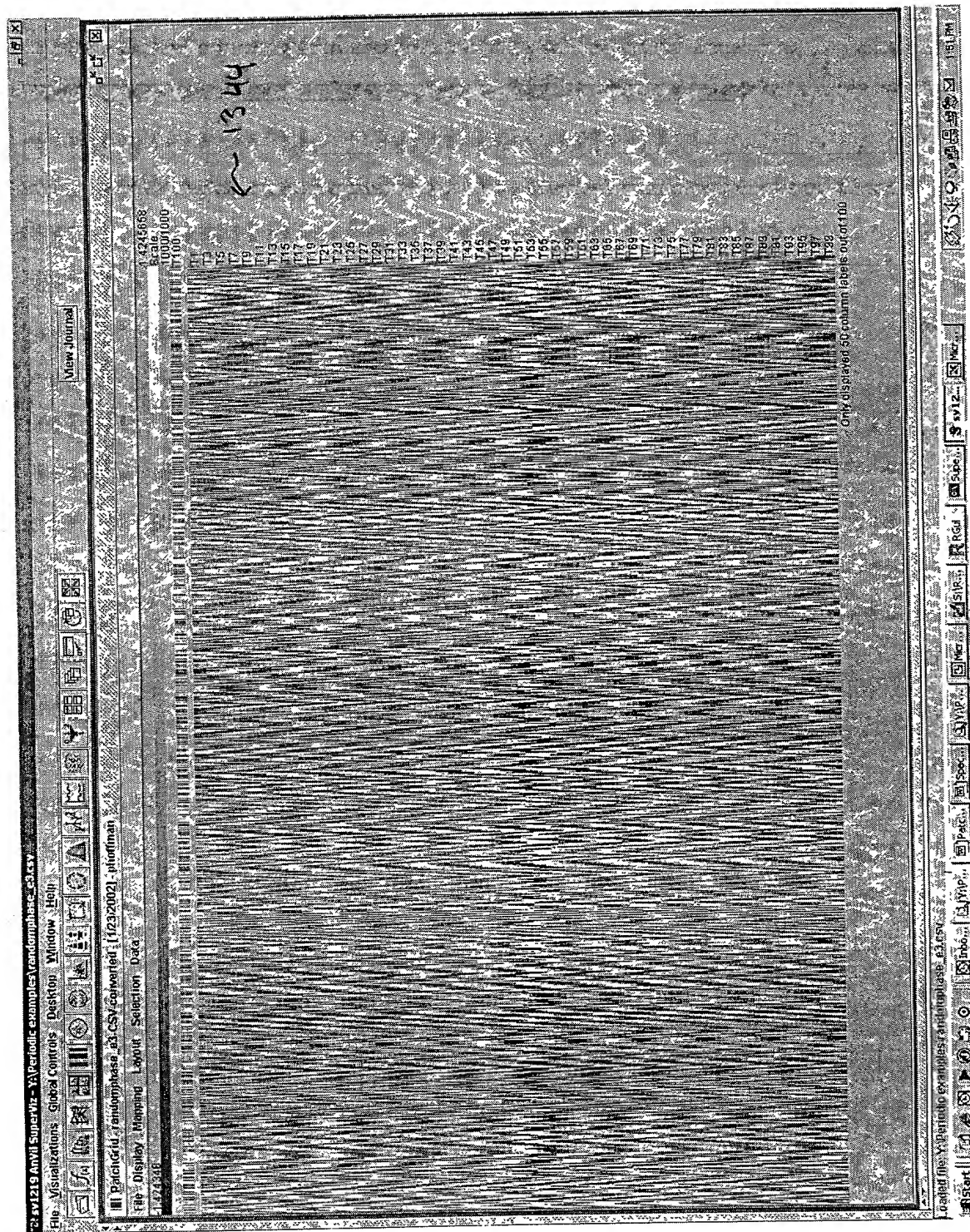


Figure 13E

226937

205720" 259600T

1309

Title: Method And System For Data Analysis  
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Contact: John V. Bianco 617-248-7870  
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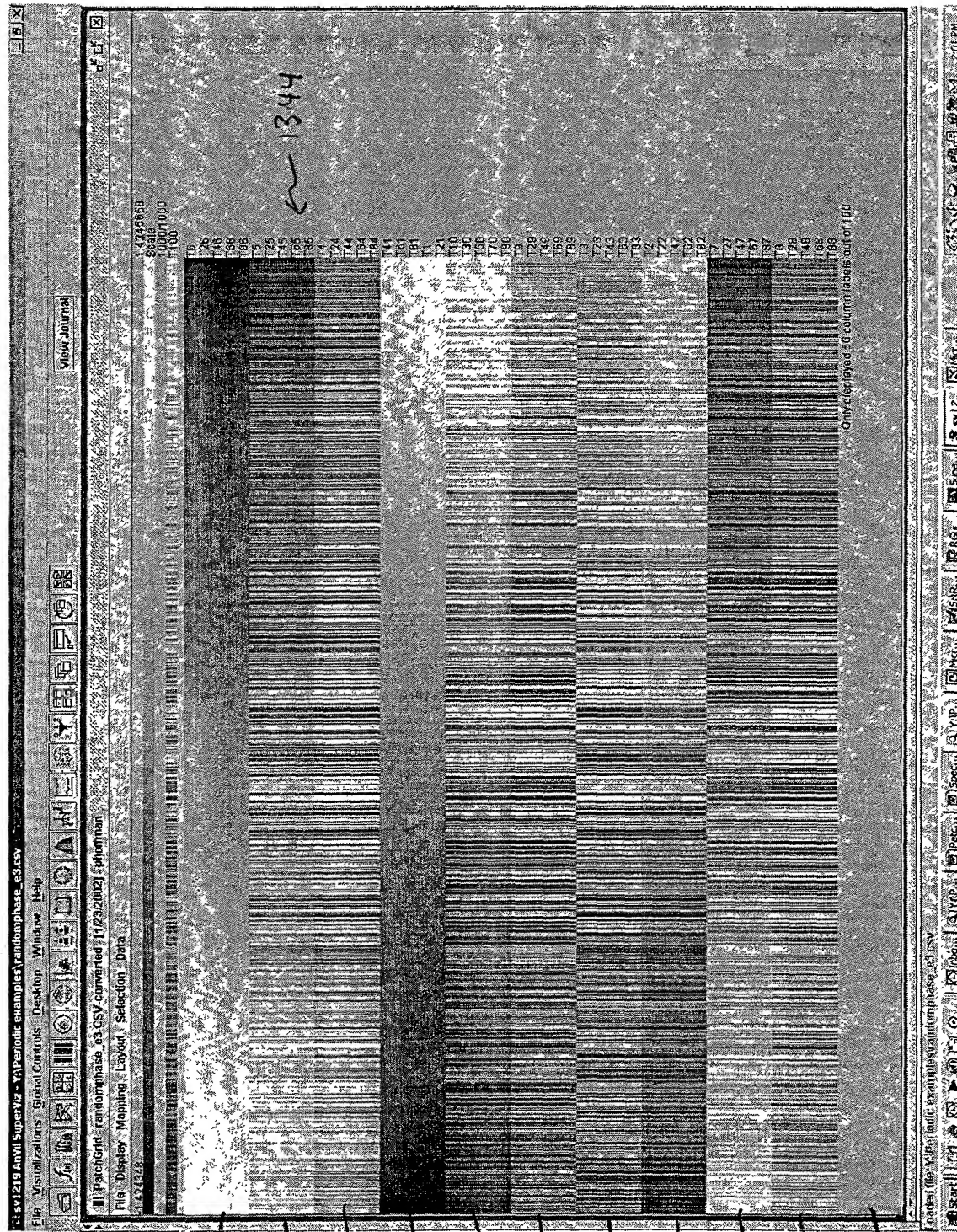


Figure 13C

226937



Title: **Method And System For Data Analysis**  
Inventor(s): Hoffman  
Serial No. Not yet assigned  
Docket No. ANV-004  
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Figure 13G

226937

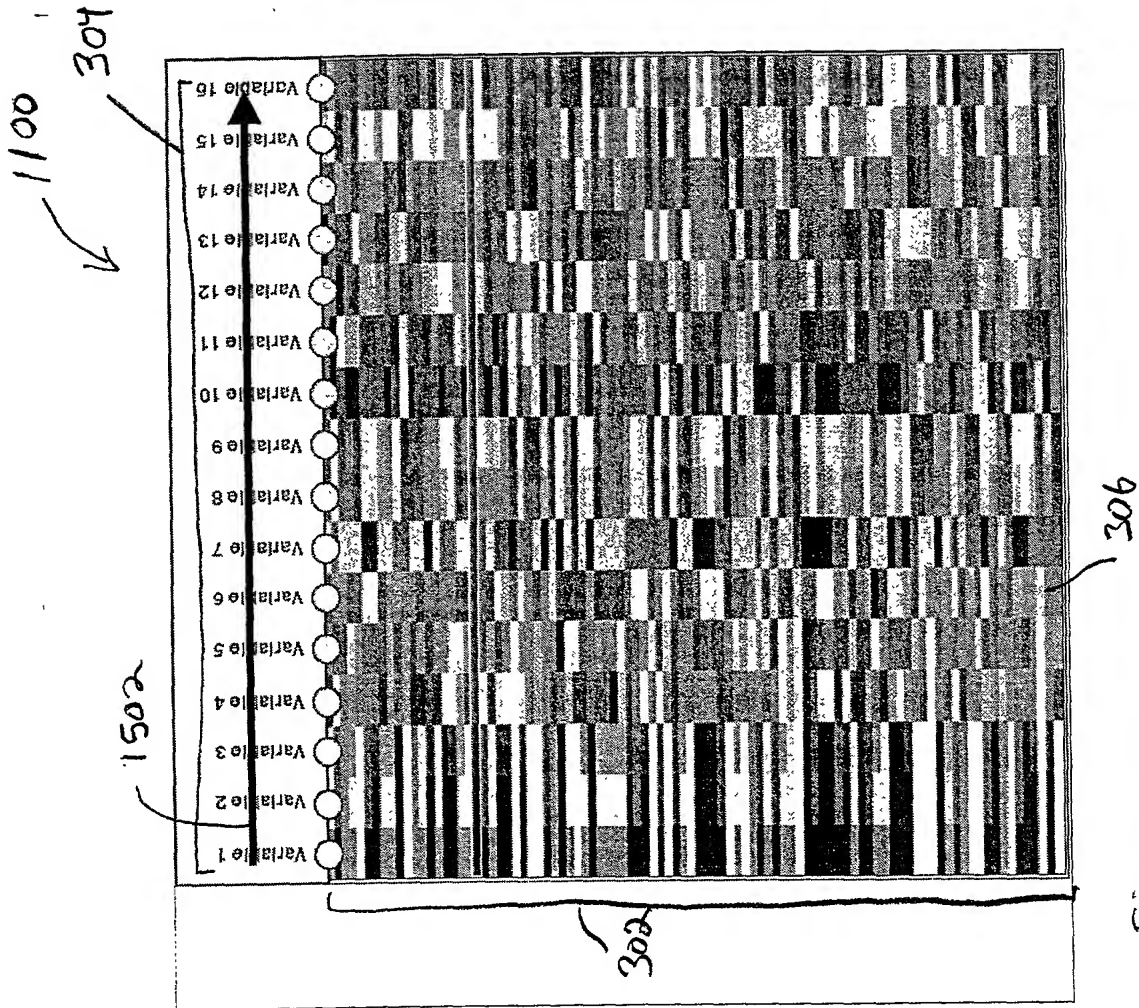


Figure 15A

Transforming a  
 rectangular to a  
 radial layout

# Radial Layout

Transforming a  
 rectangular to a  
 radial layout

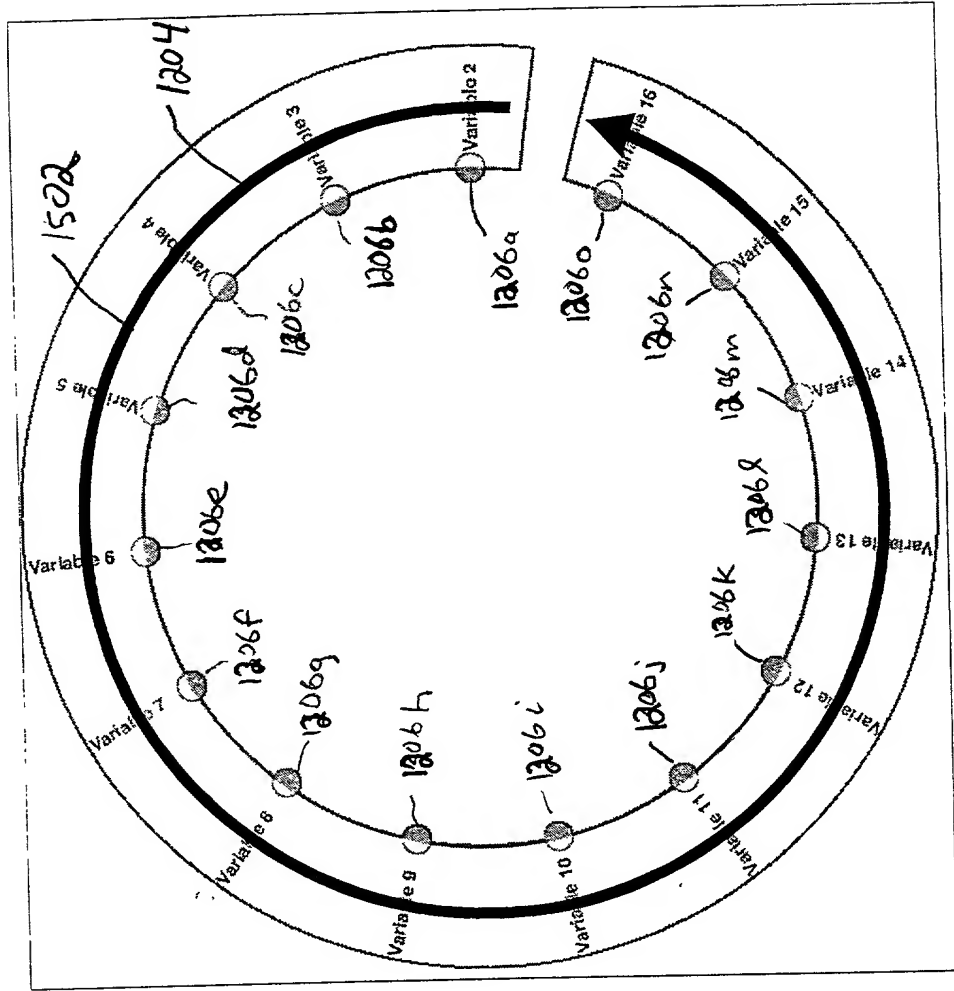
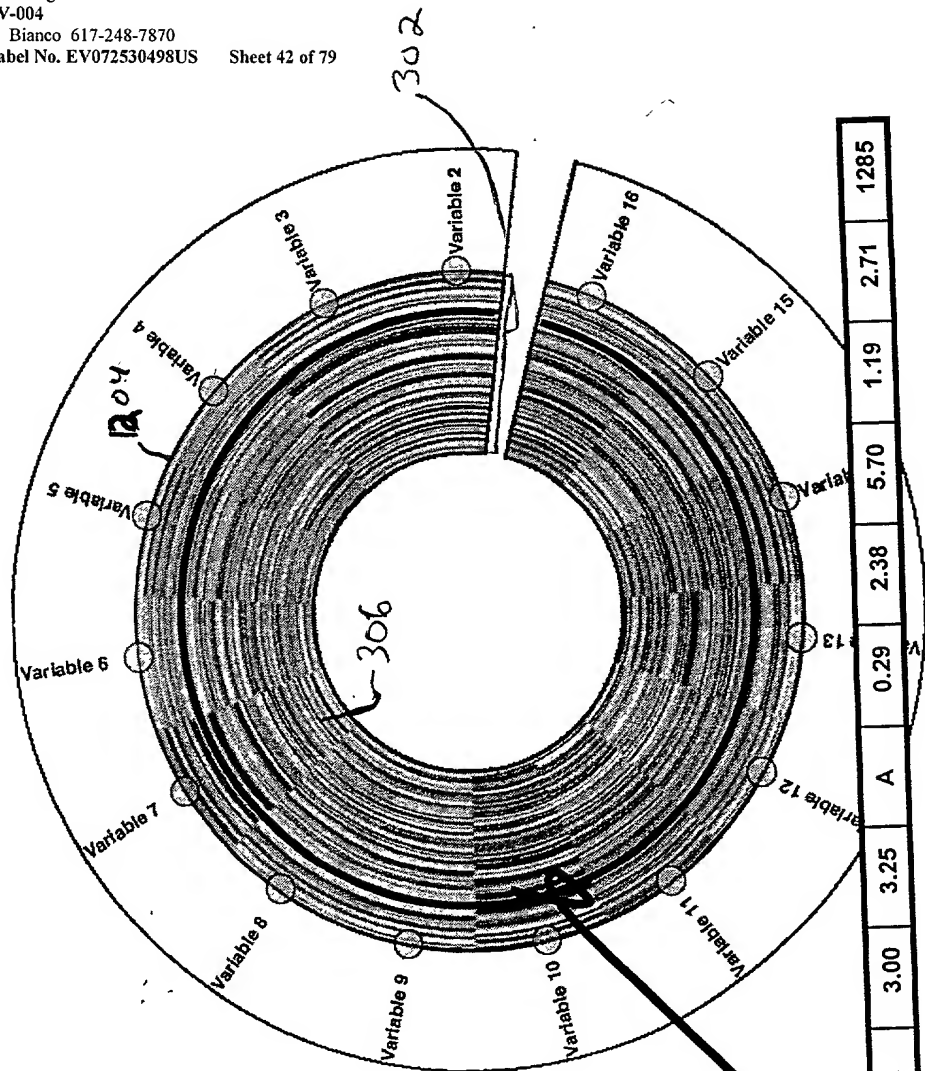


Figure 150

# Radial Layout

Transforming a rectangular to a radial layout



308

Example Record 20

A	A	B	101	C	3.00	3.25	A	0.29	2.38	5.70	1.19	2.71	1285
---	---	---	-----	---	------	------	---	------	------	------	------	------	------

1308

Figure 15c



205120-263400F

# Shape Control - Before Moving Anchors

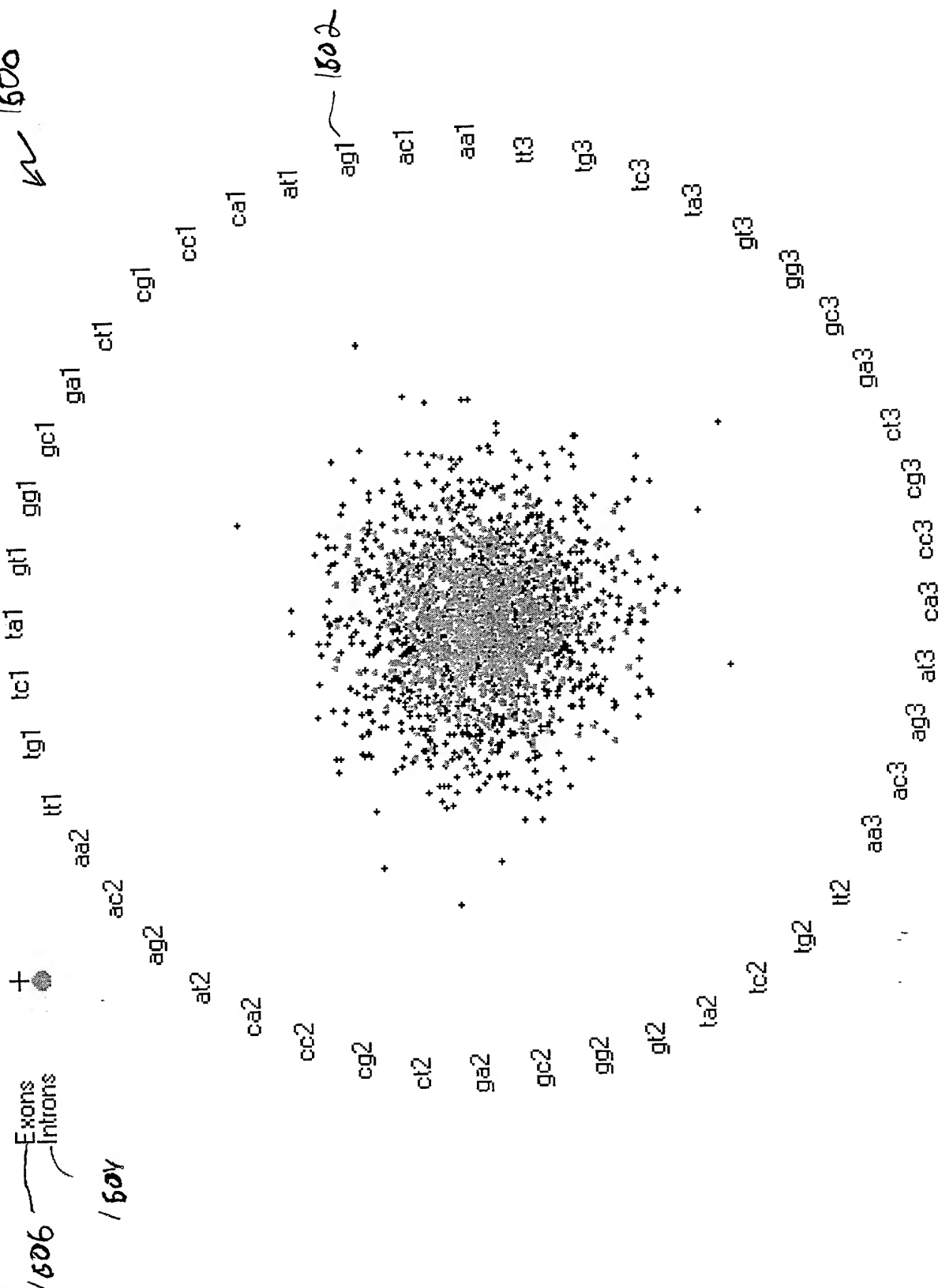


Figure 16A

2218917

205120-26922001

# Shape Control - Ellipse

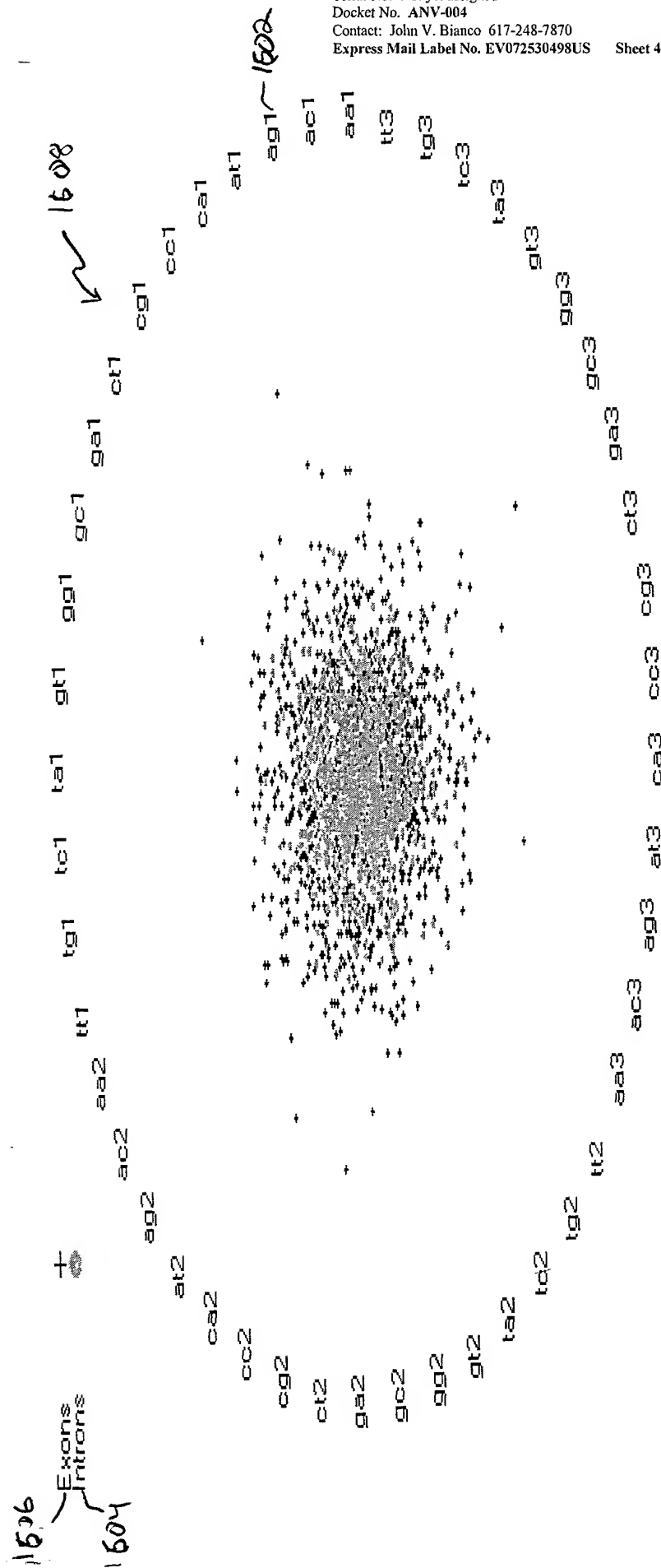


Figure 15B

2004-20-2692200F

# Shape Control - Arbitrary Spline

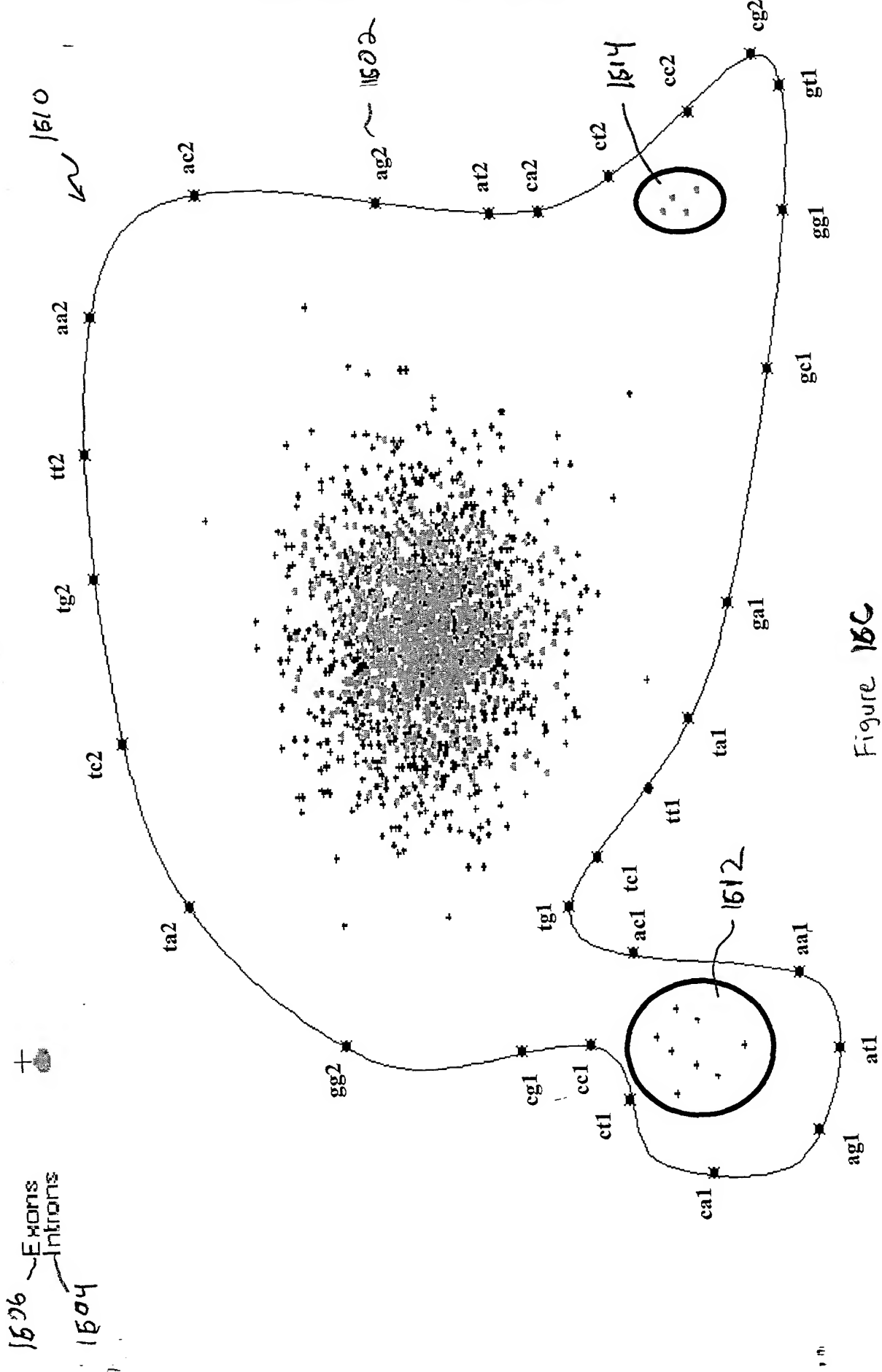


Figure 16C

62-1620

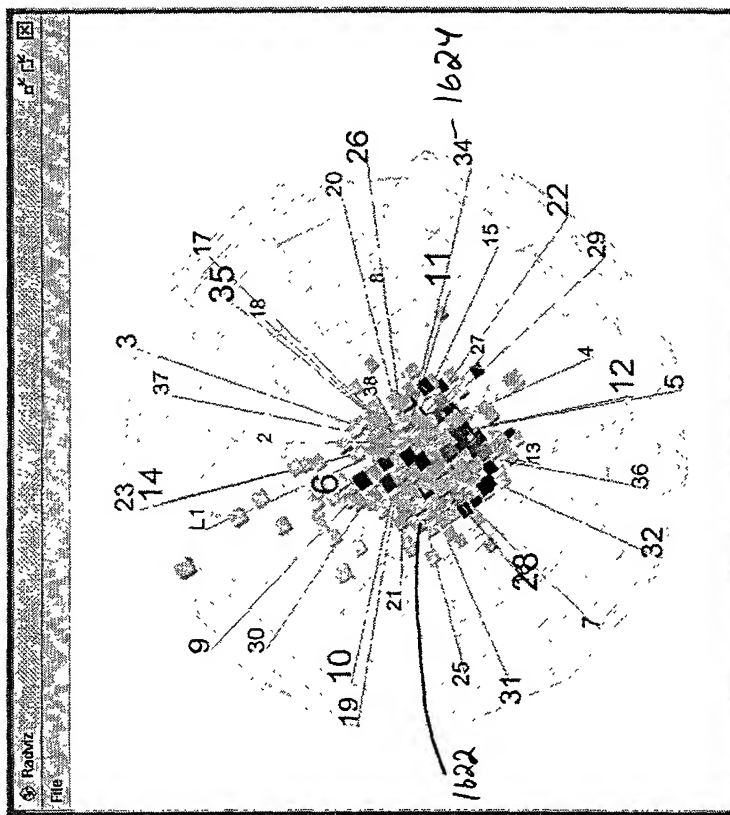


Fig. 16D



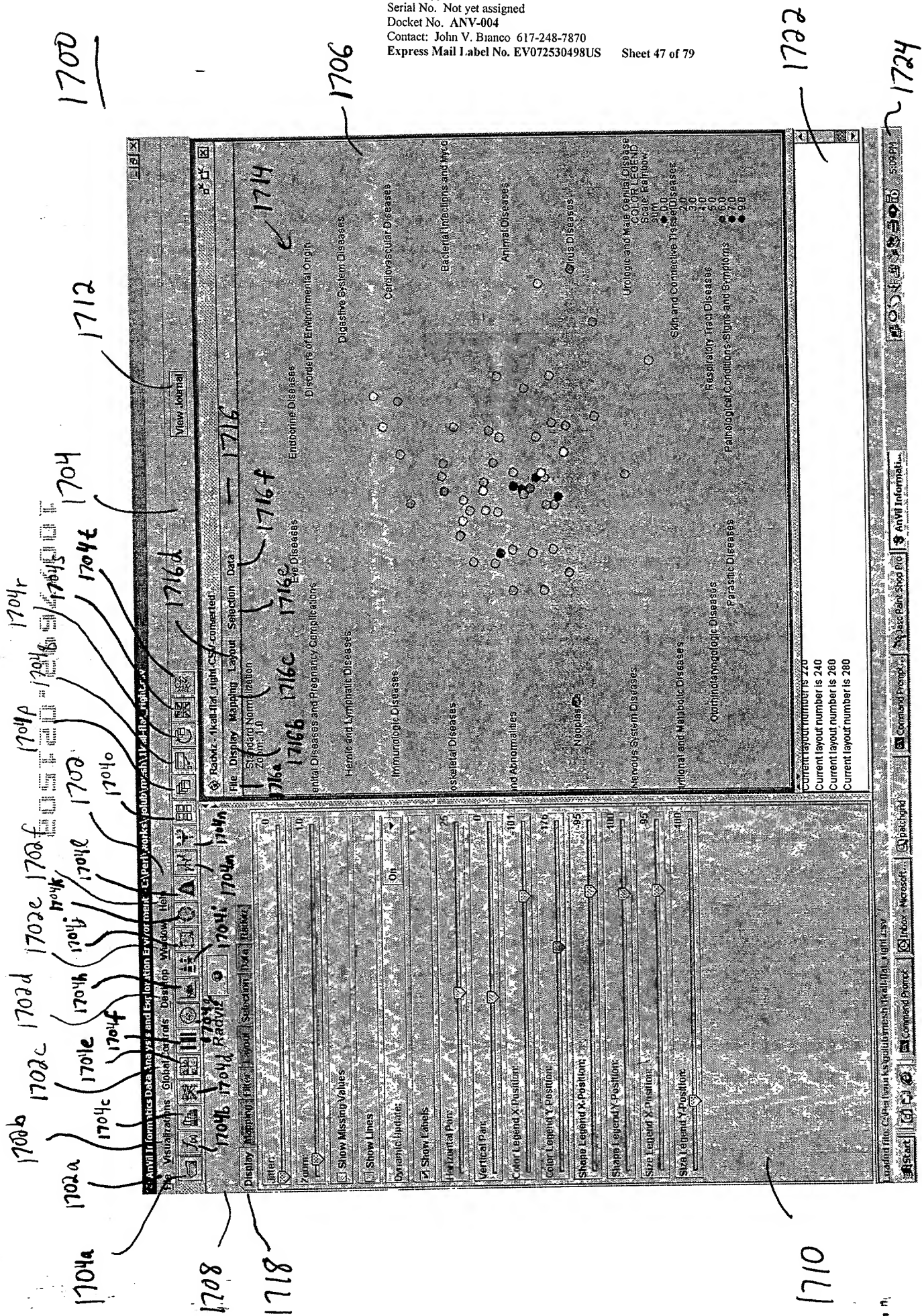


Figure 17

2174266

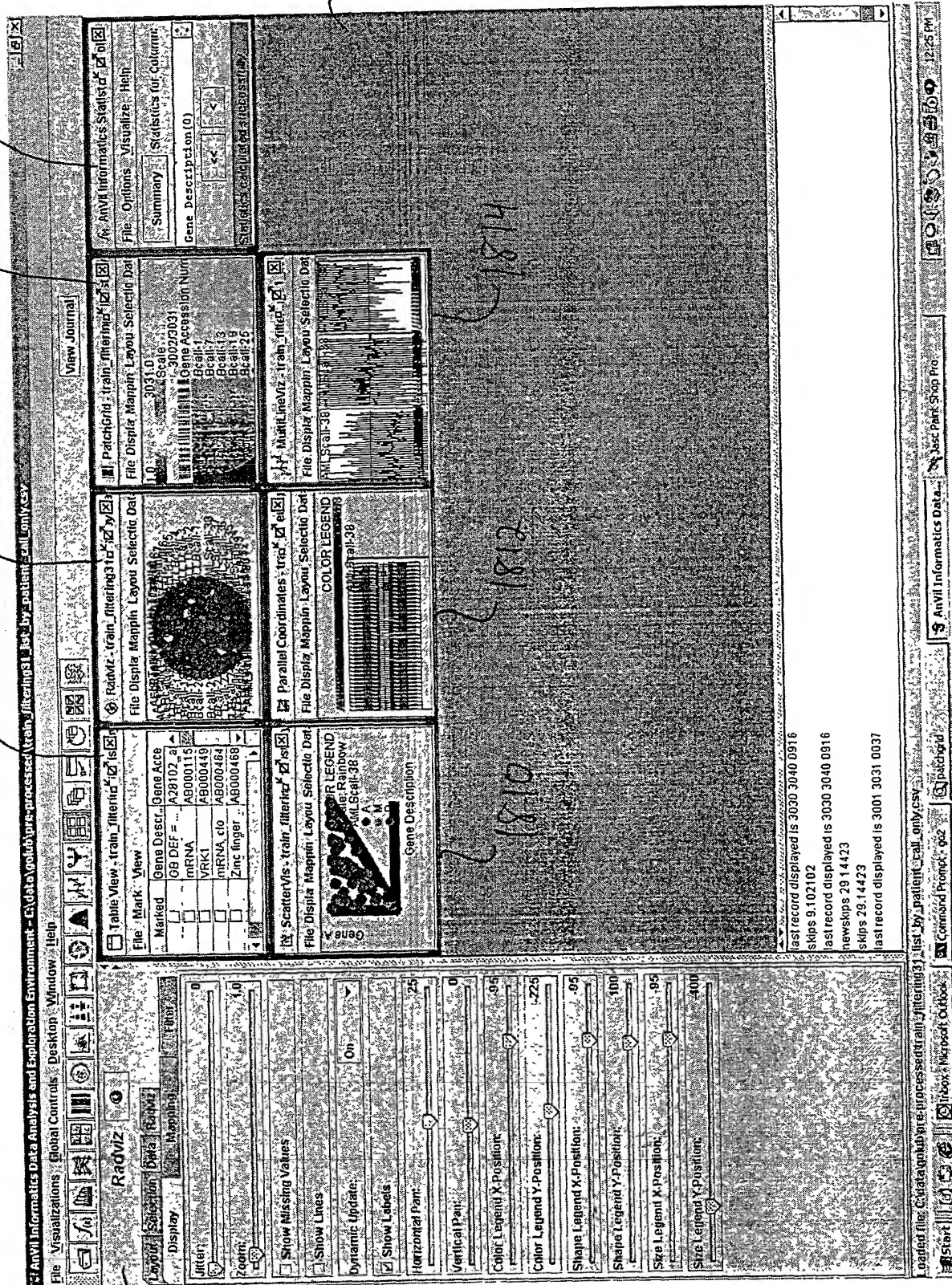


Figure 18

2218917



205120 26944007

1900

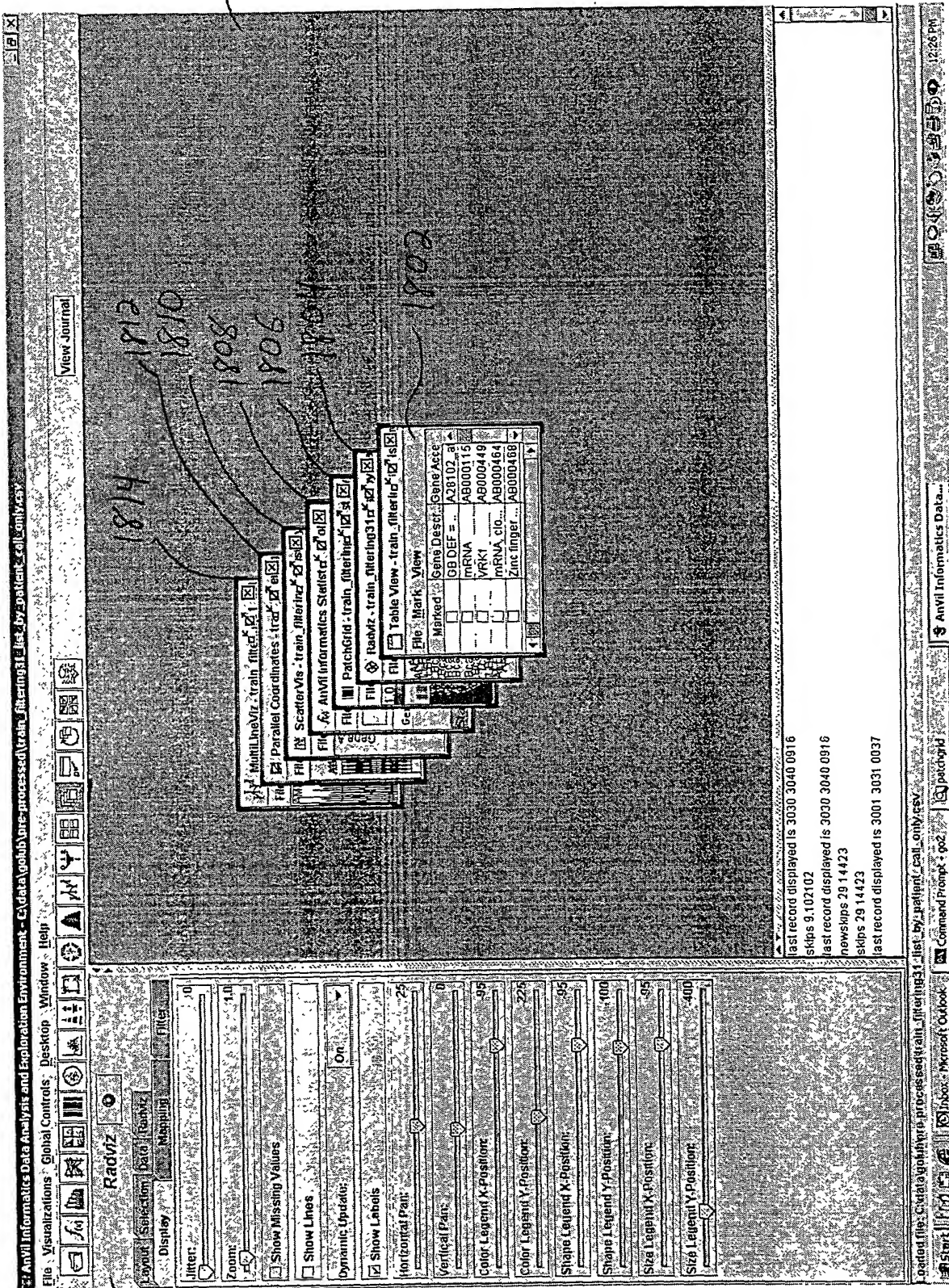


Figure 19

205120 26944007



2008

2020

-1706

2006

2004

[illegible]

Figure 20



2012-06-26 09:42:00

1710a

1710g

2102

1708

1718

2106

2104

2102

1720

2110

2102

2174305

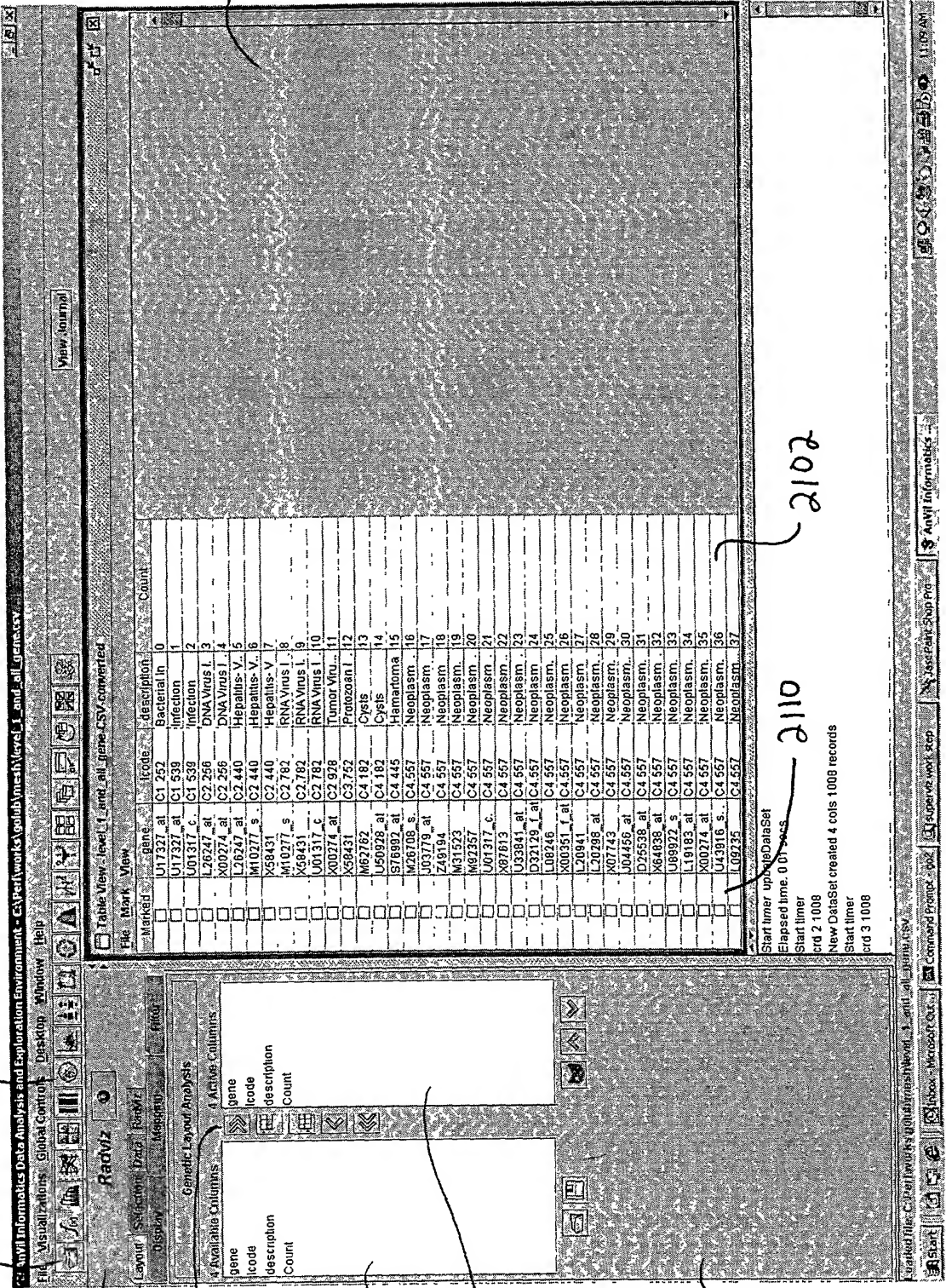


Figure 21

2202

1706

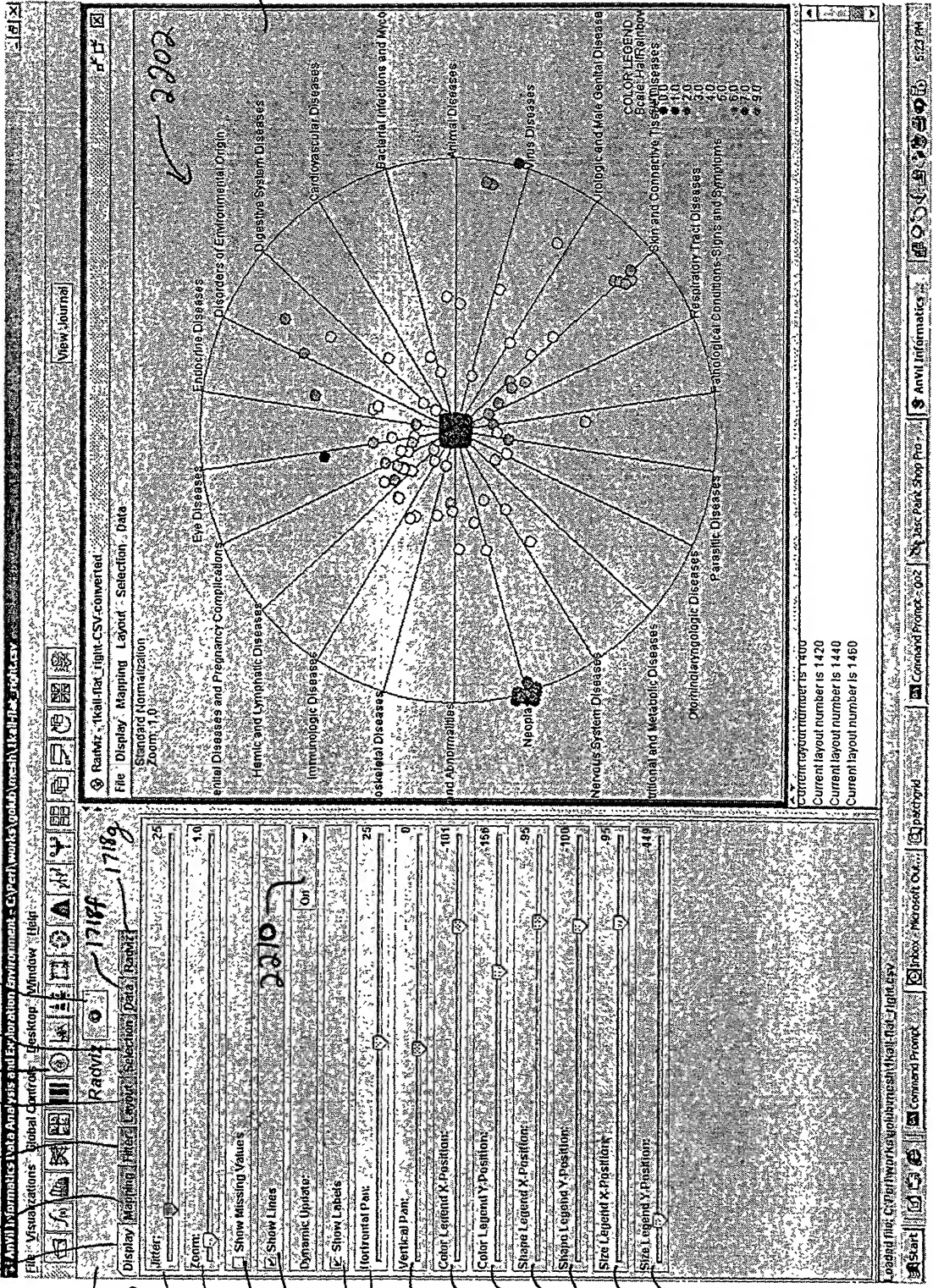


Figure 22

2218917

1708

1718

2206a

2206b

2208a

2208b

2208c

2206c

2206d

2206e

2206f

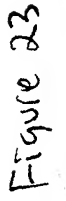
2206g

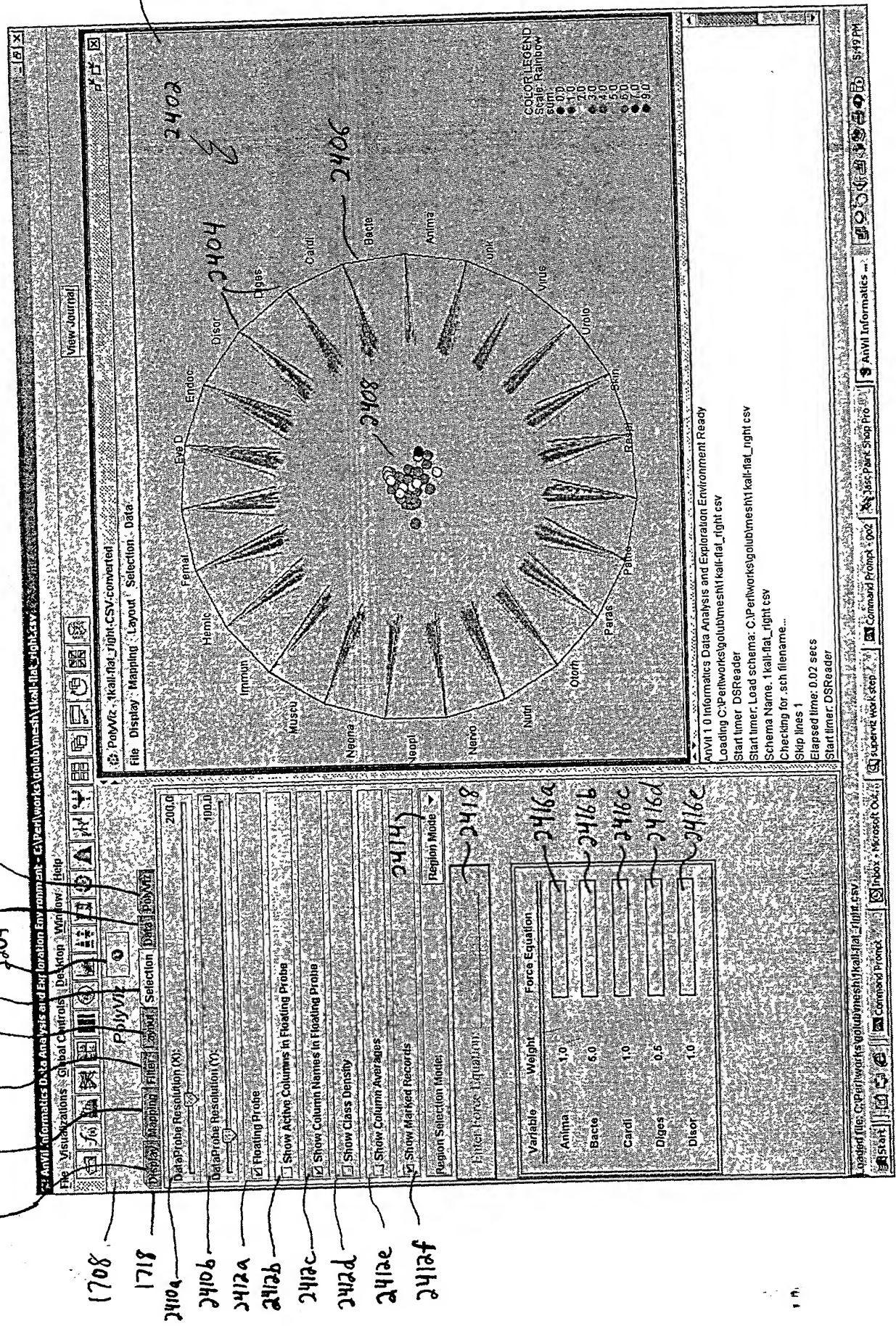
2206h

2206i

2206j









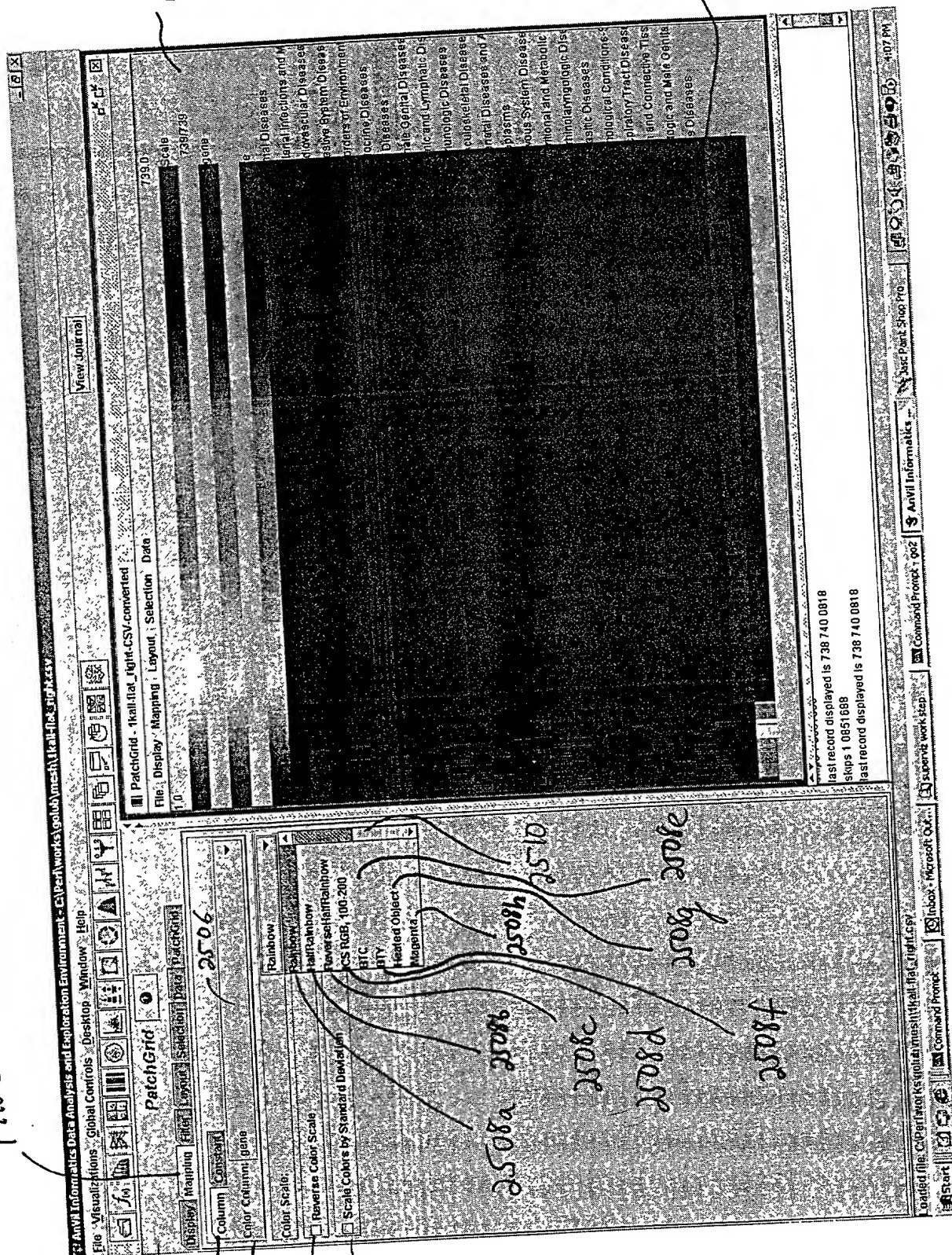


Figure 25



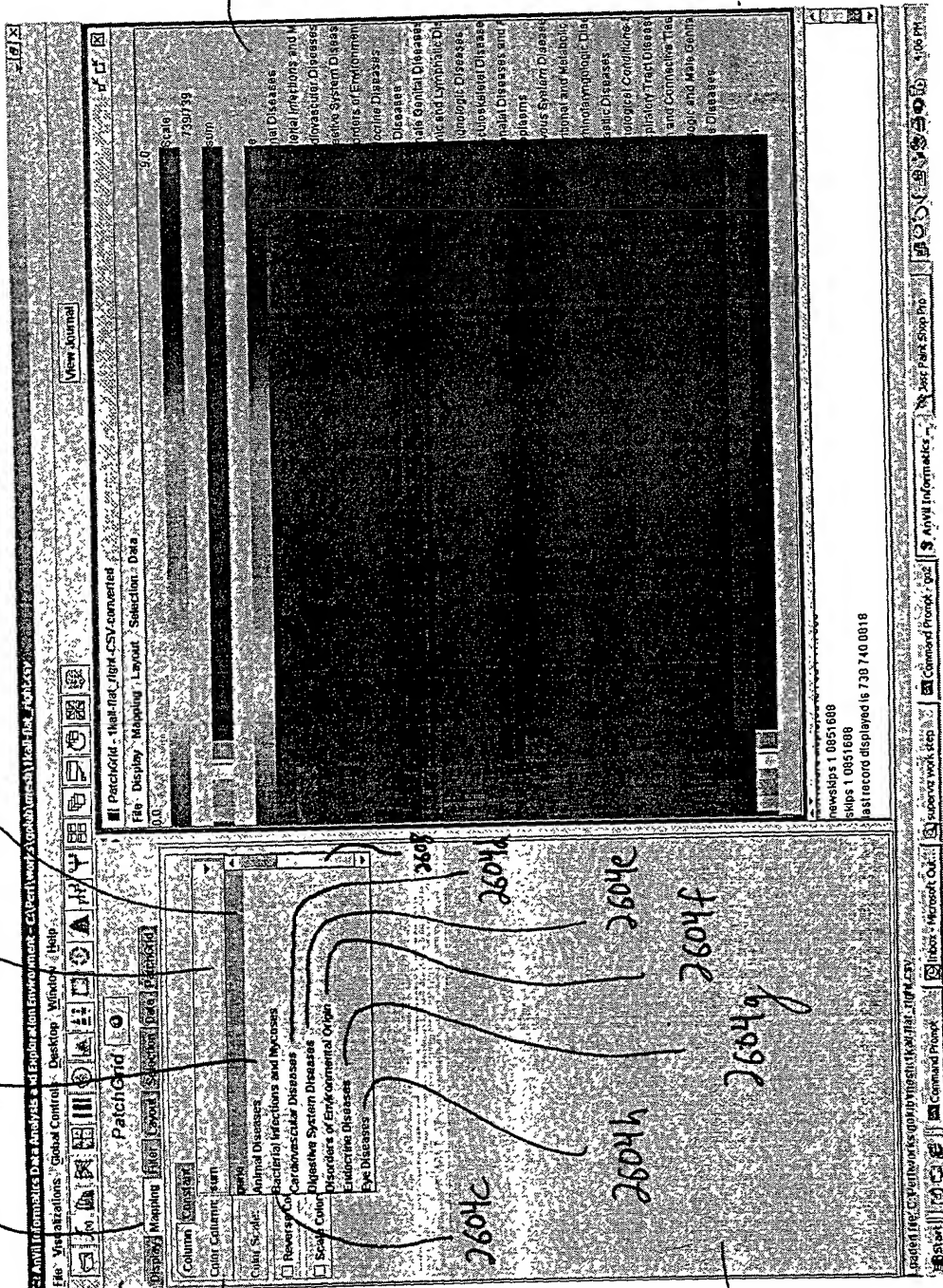
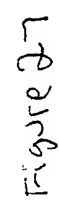


Figure 26

2018917





205720" 26944000

2800

1708

2810

1706

2812

2814

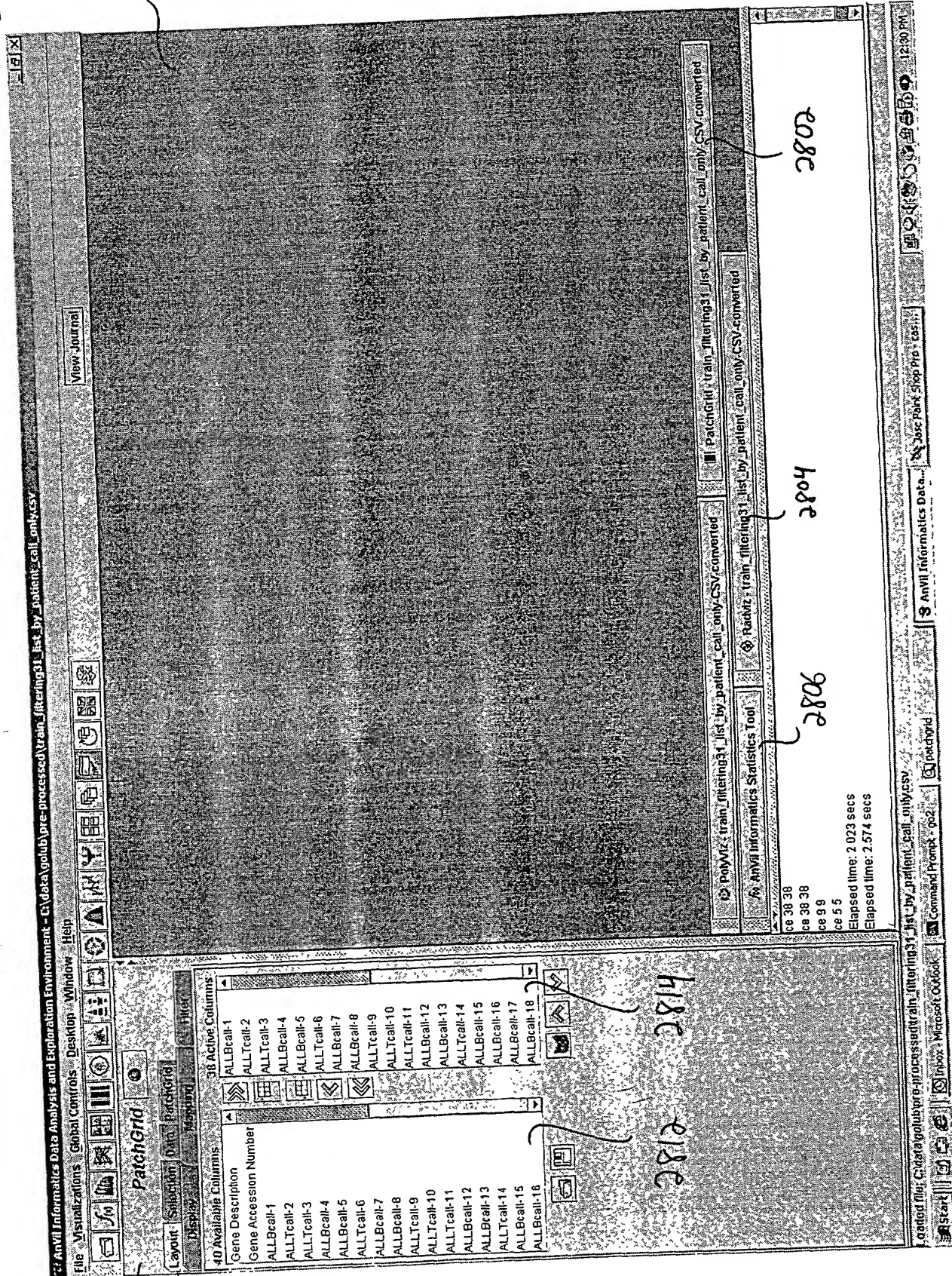
2802

2804

2802

Figure 28

2218917



2904 2204051200 2204051200

2900

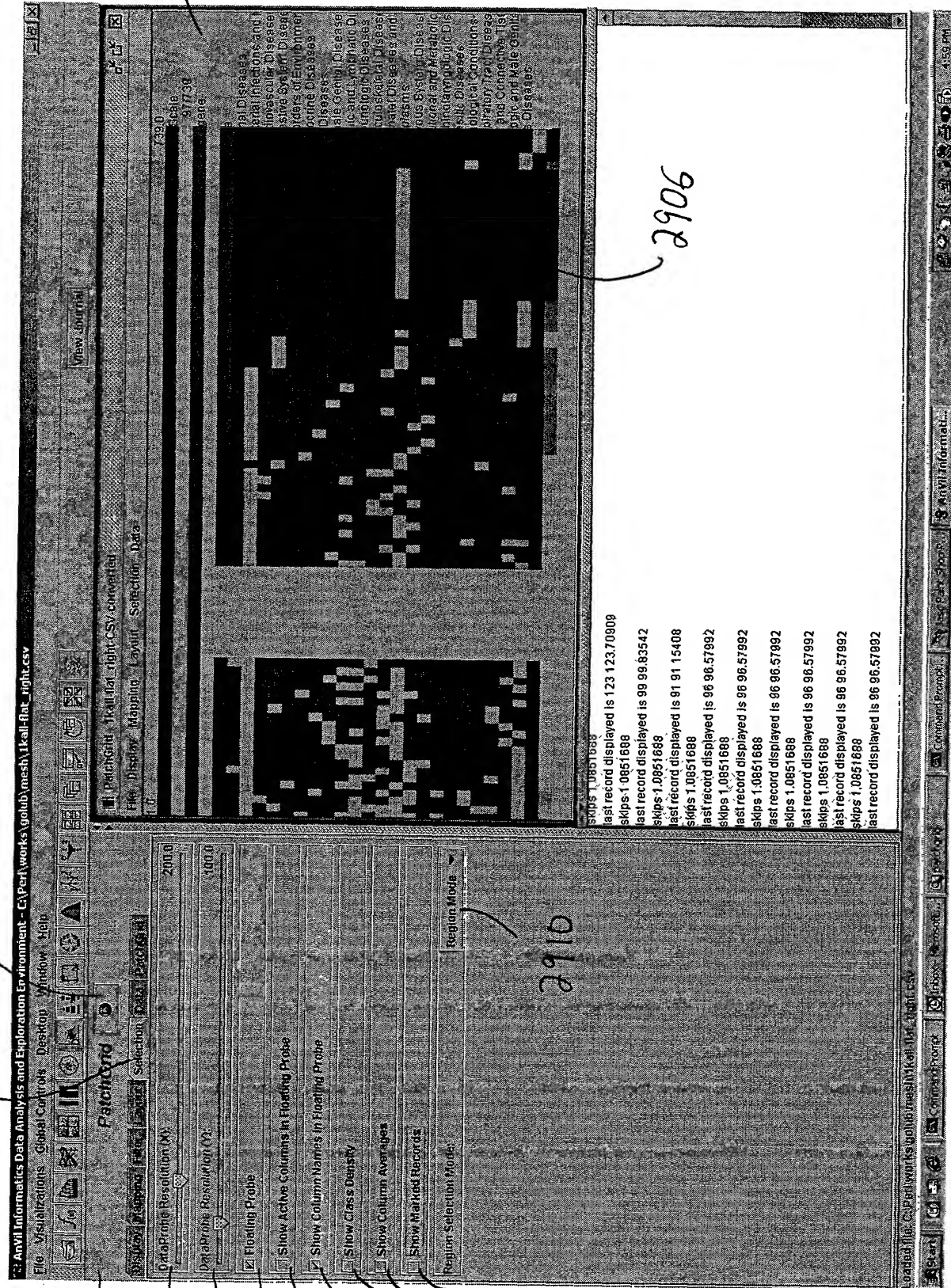


Figure 29

217428



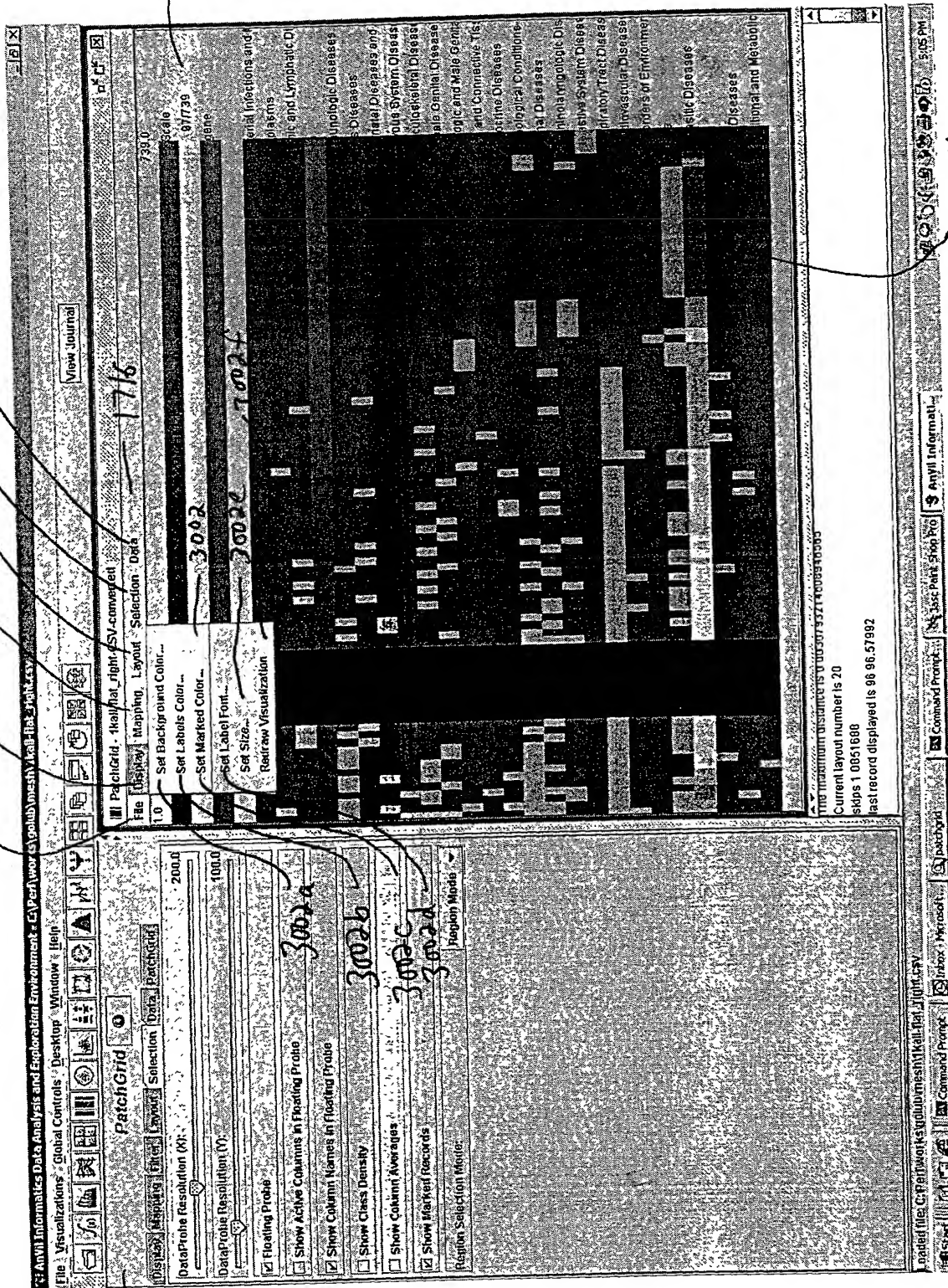


Figure 30

2218917



3100

1716e

1706

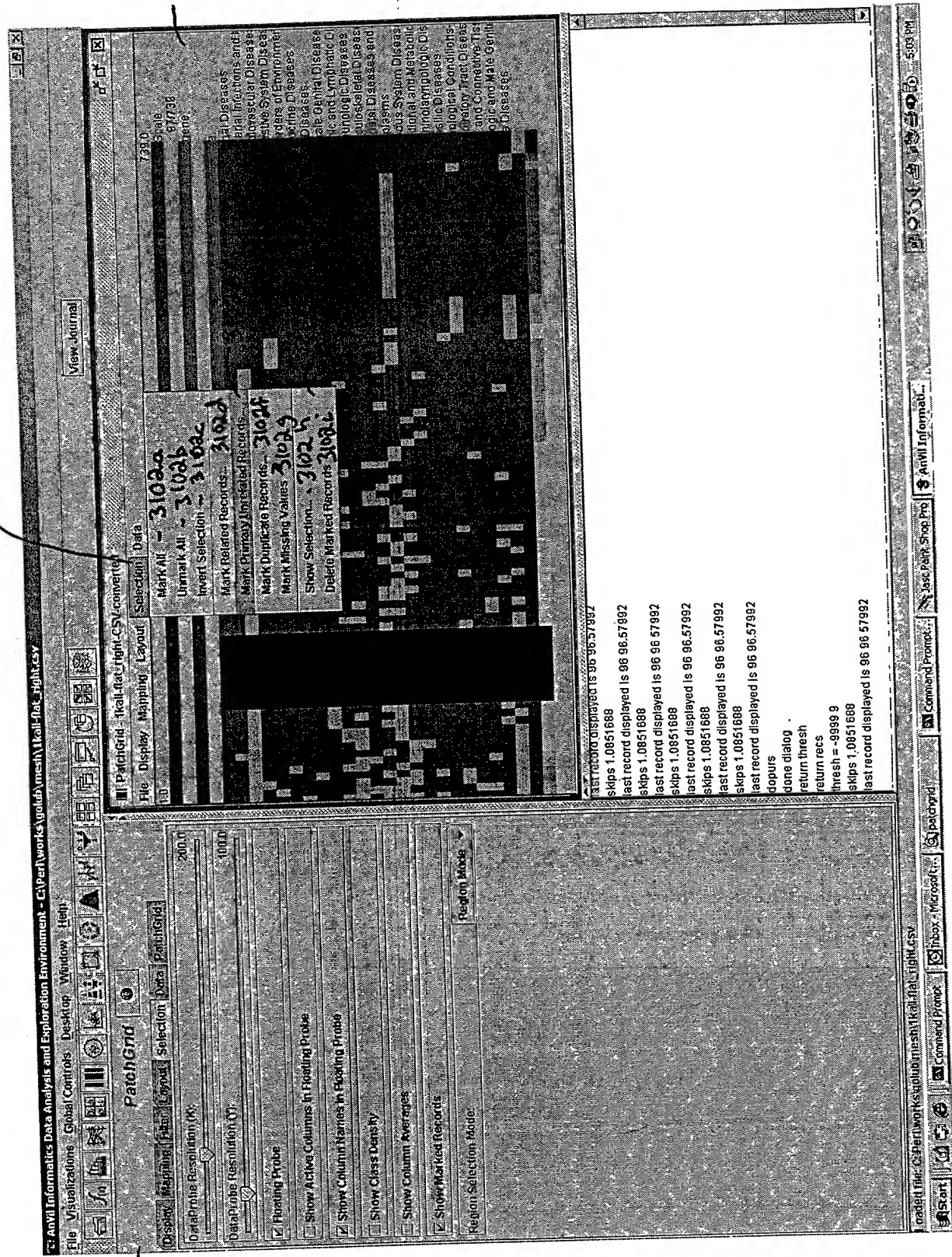


Figure 31

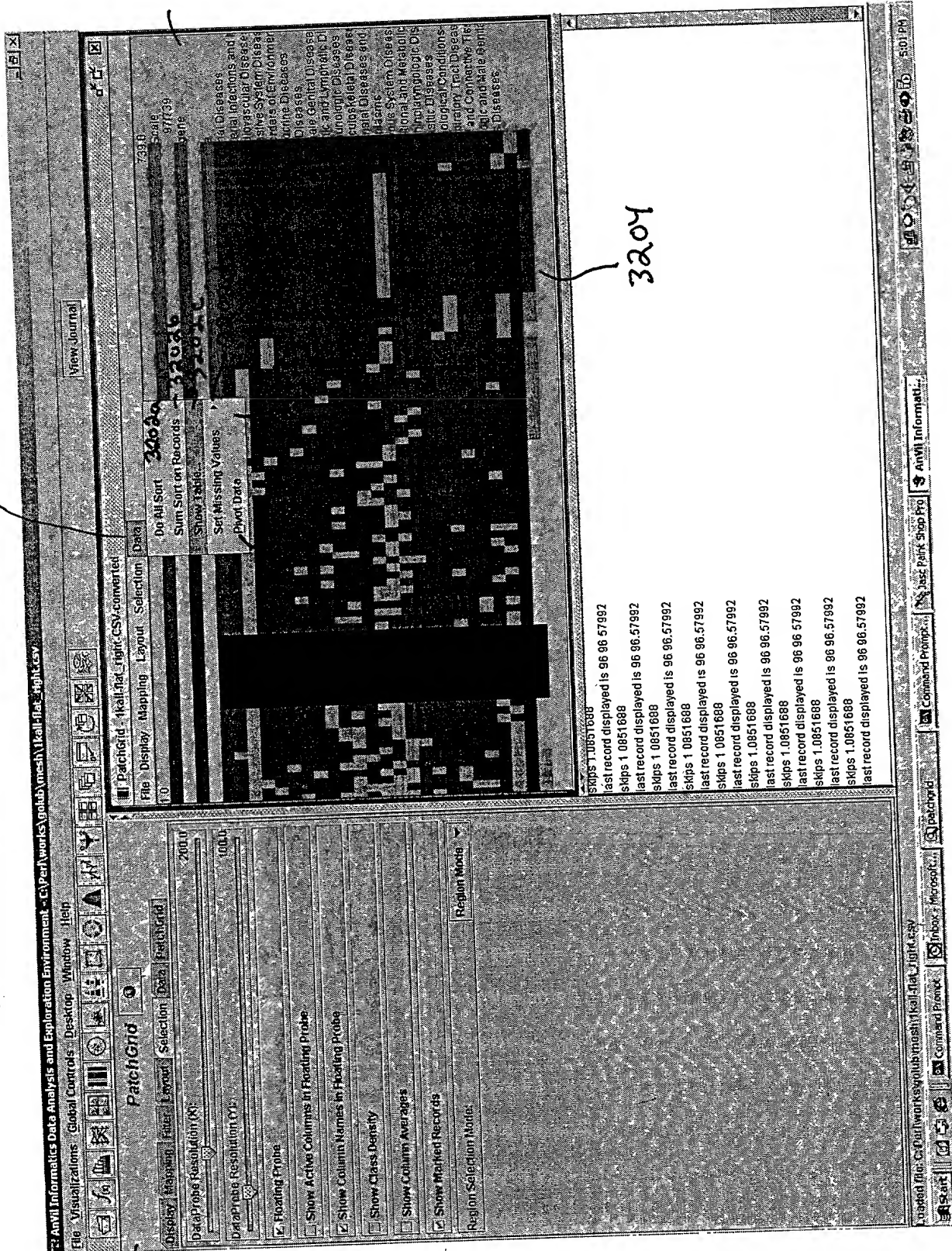
3200

1766

1706

3204

Figure 32





3300



Figure 33

# Treatment Outcome Prediction

## Chemotherapy

- 76 Gene Predictor Set
- Success
- Failure
- Boundary

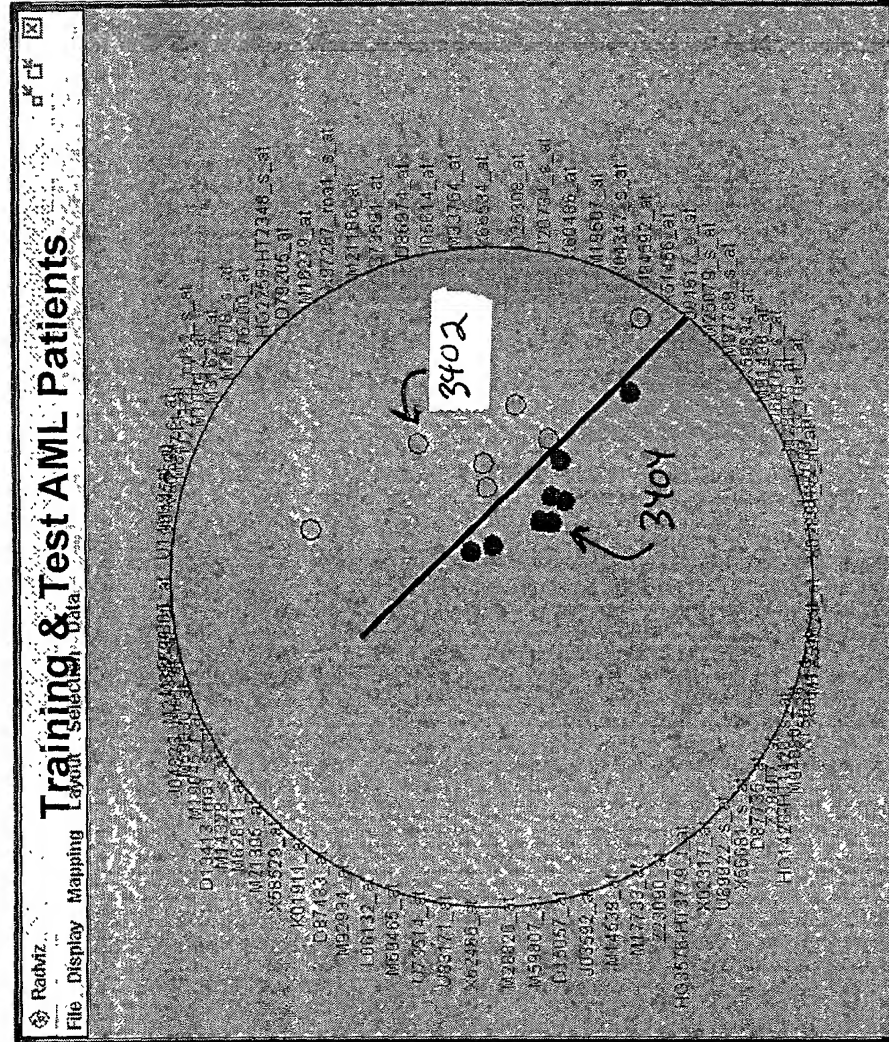


Figure 34



# Reduced Genes

h886522

# Chemical Structure

Benzodiazepines

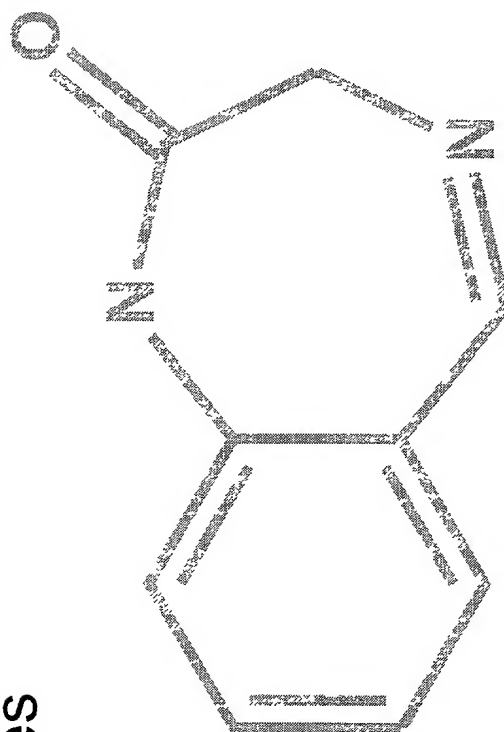


Figure 36

# Radial Visualization Showing R<sub>3</sub> Attributes

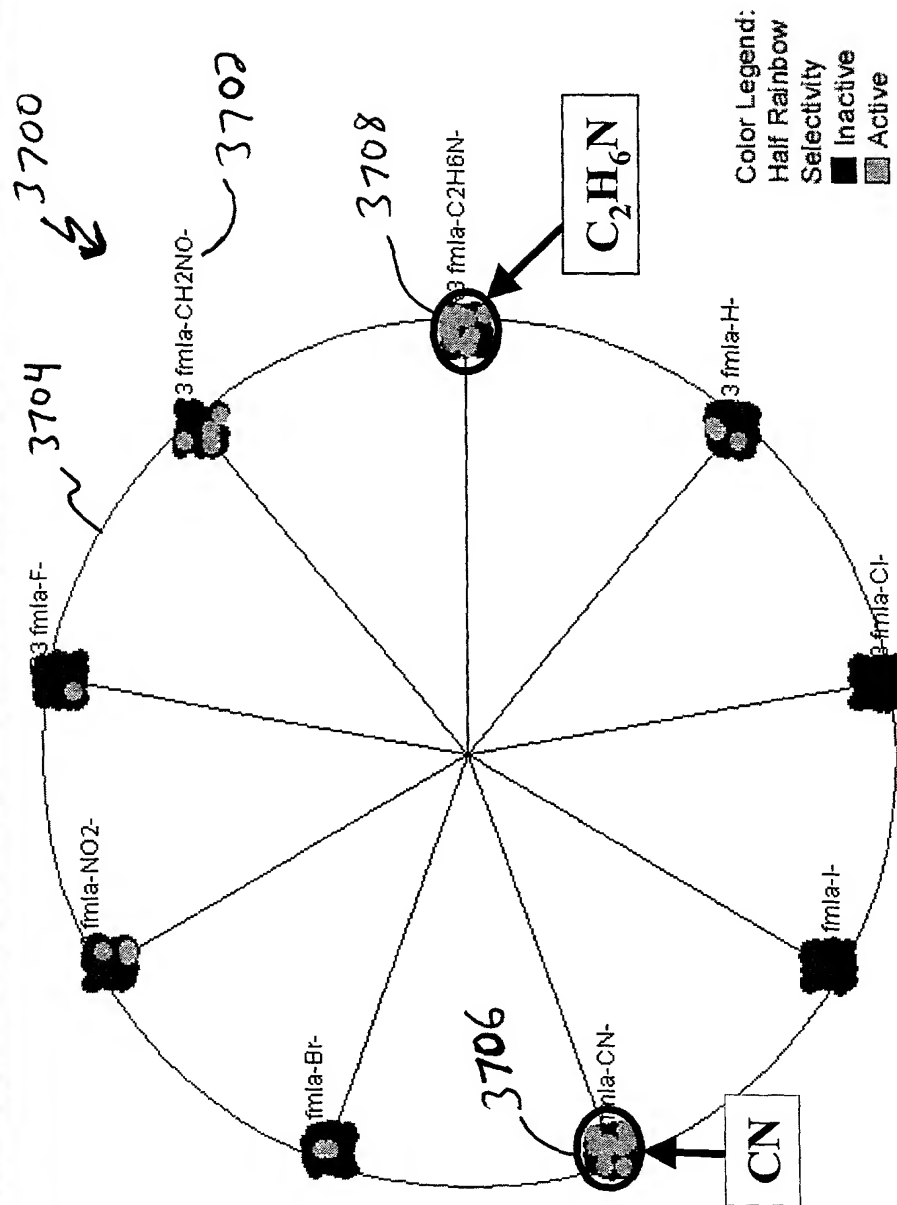


Figure 37

# Radial Visualization Showing $R_3$ & $R_4$ Attributes

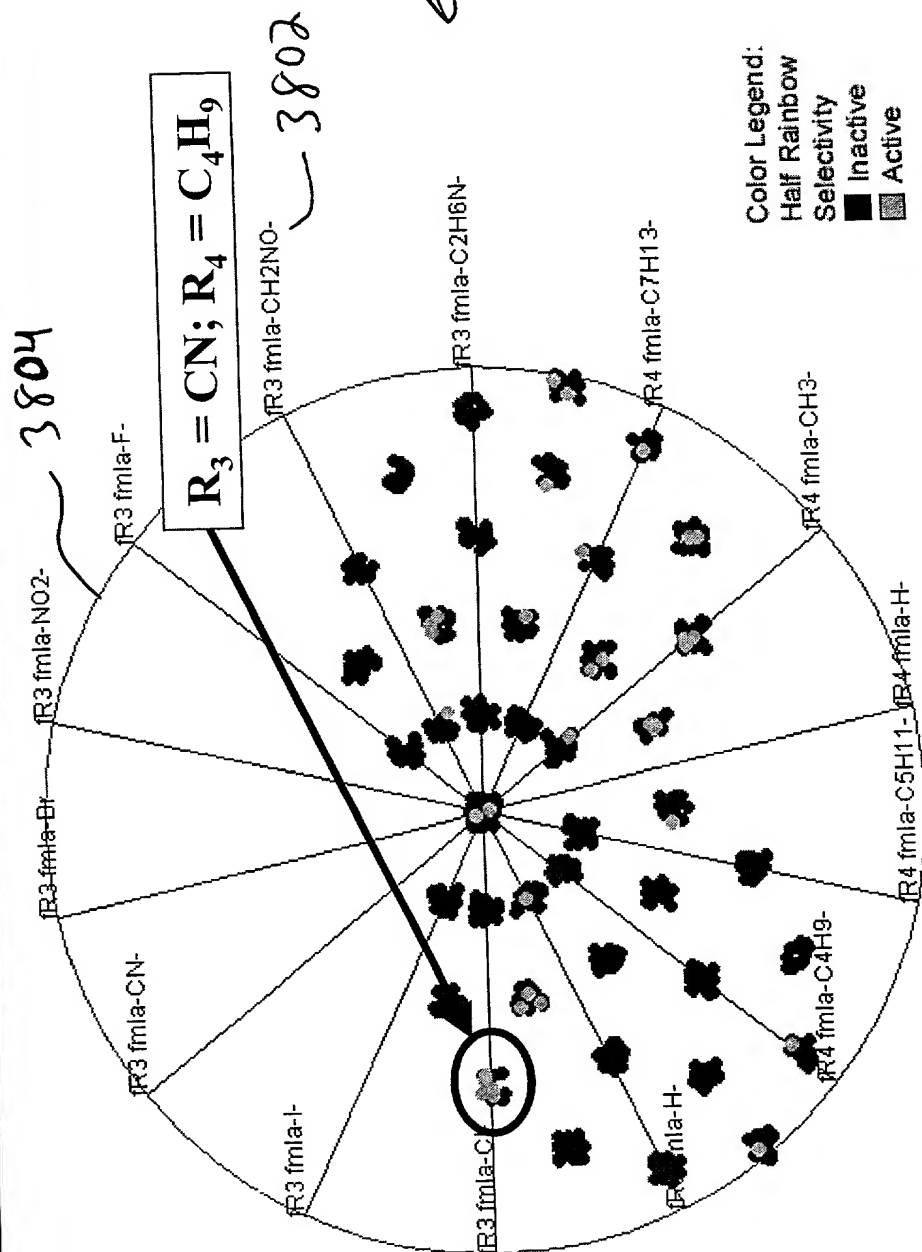


Figure 38

2273661



# Radial Visualization Showing R<sub>3</sub> & R<sub>4</sub> Attributes

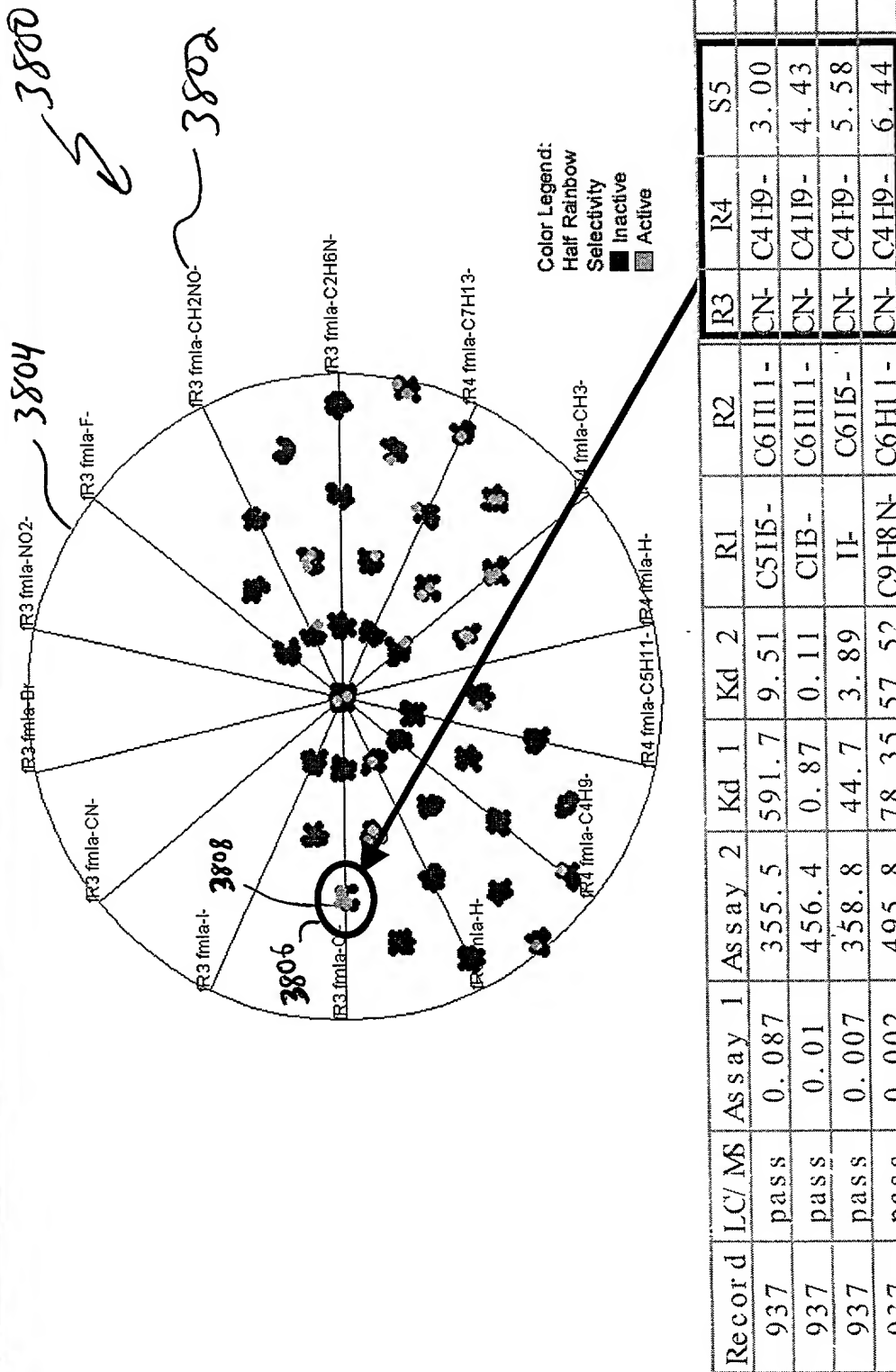
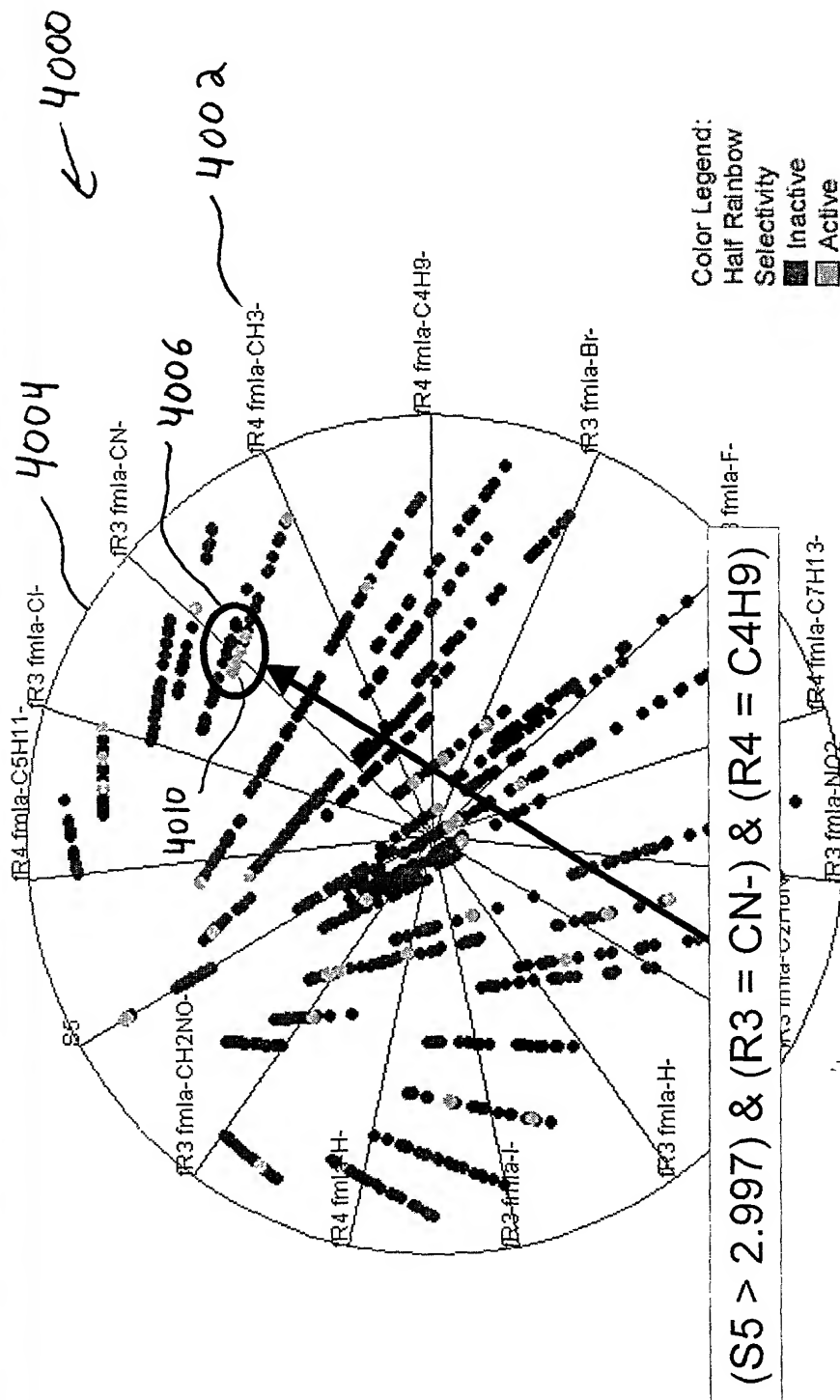


Figure 39

CONFIDENTIAL

# Radial Visualization Showing $R_3$ , $R_4$ & $S_5$ Attributes

Title Method And System For Data Analysis  
Inventor(s): Hoffman  
Serial No. Not yet assigned  
Docket No. ANV-004  
Contact: John V. Bianco 617-248-7870  
Express Mail Label No. EV072530498US Sheet 70 of 79



20250720 2273661

# Radial Visualization Showing R<sub>3</sub>, R<sub>4</sub> & S<sub>5</sub> Attributes

Title: Method And System For Data Analysis  
Inventor(s): Hoffman  
Serial No. Not yet assigned  
Docket No. ANV-004  
Contact: John V Bianco 617-248-7870  
Express Mail Label No. EV072530498US Sheet 71 of 79

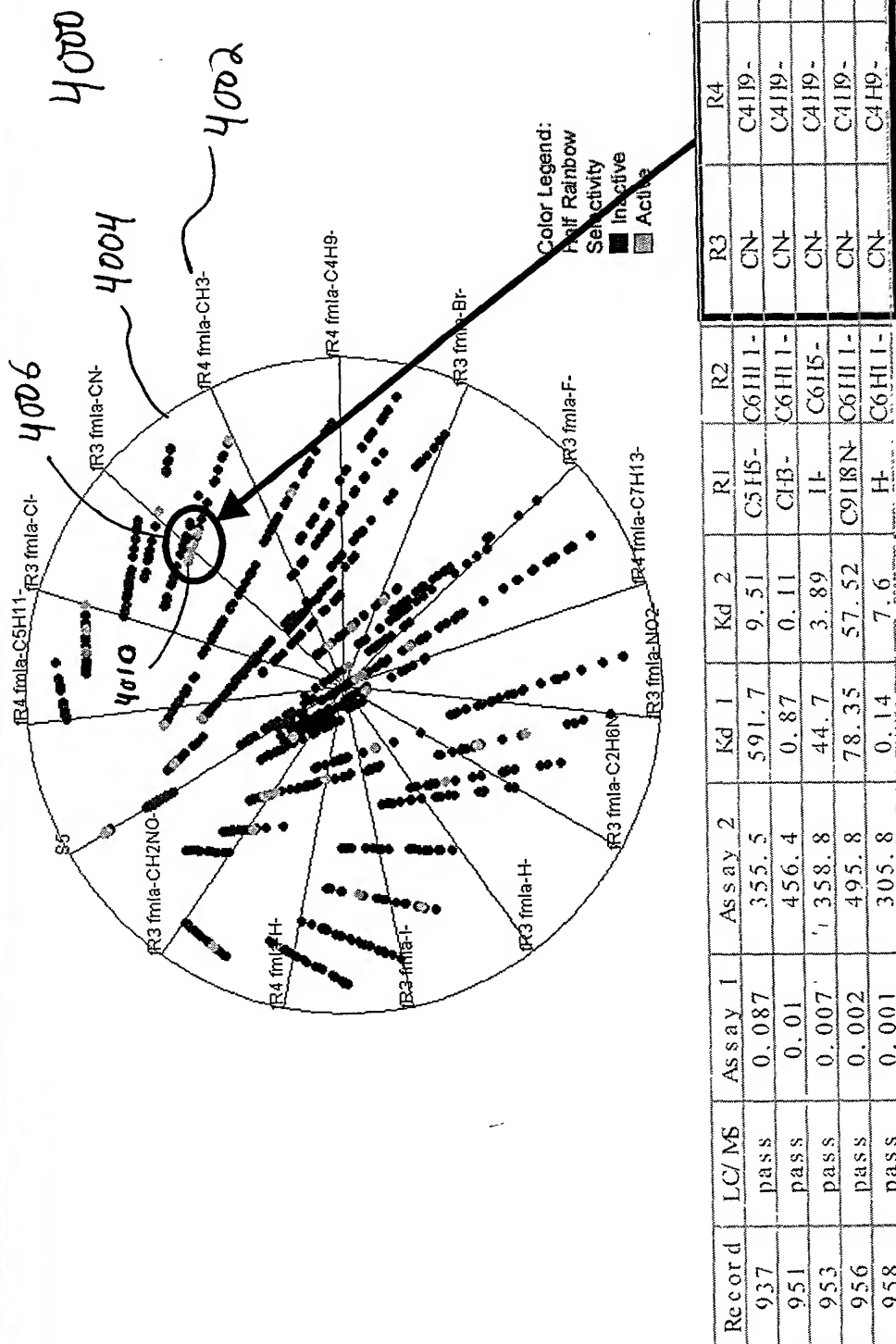


Figure 41

2273661



20250726 09:22:00

# Pearson Cross Correlations

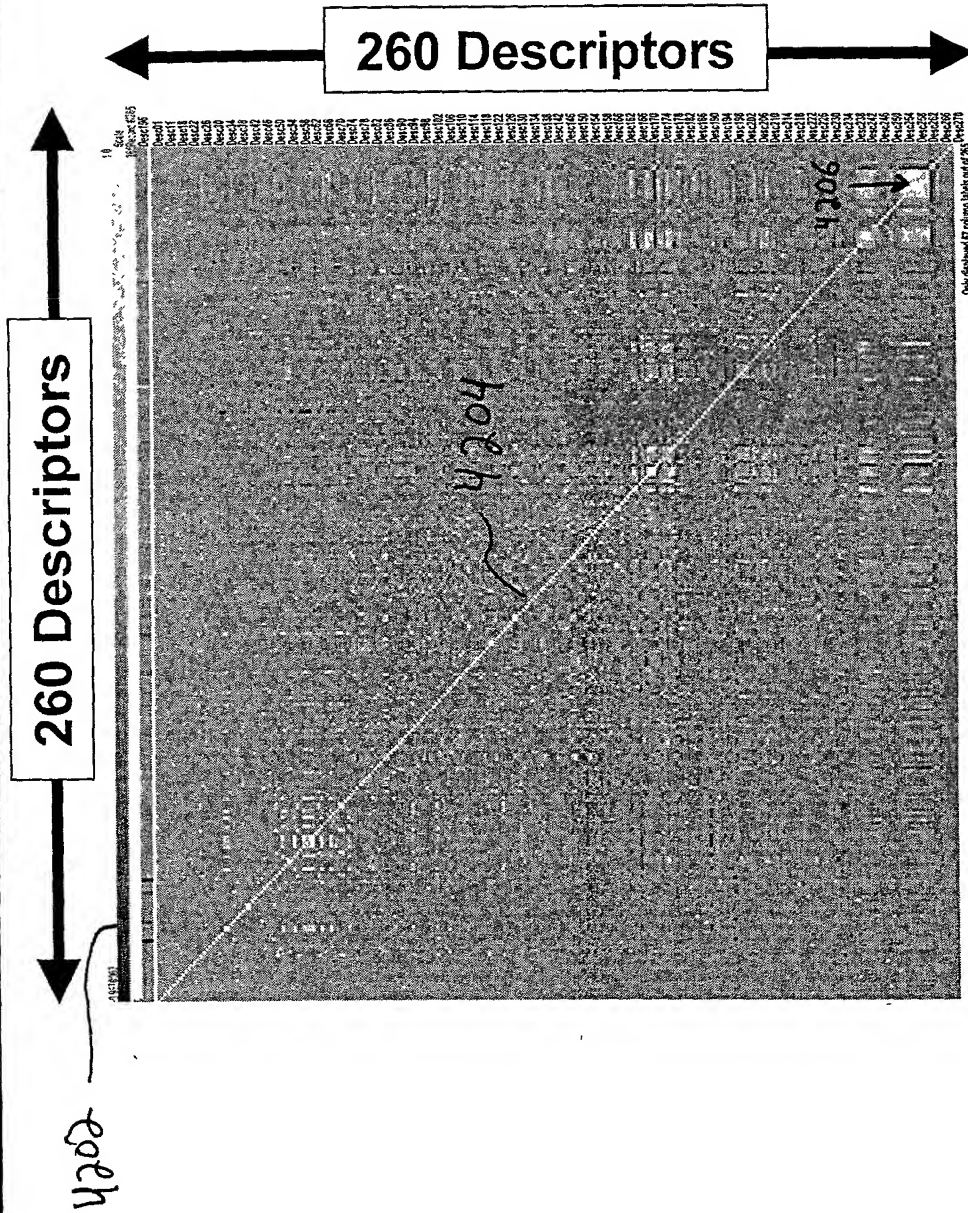
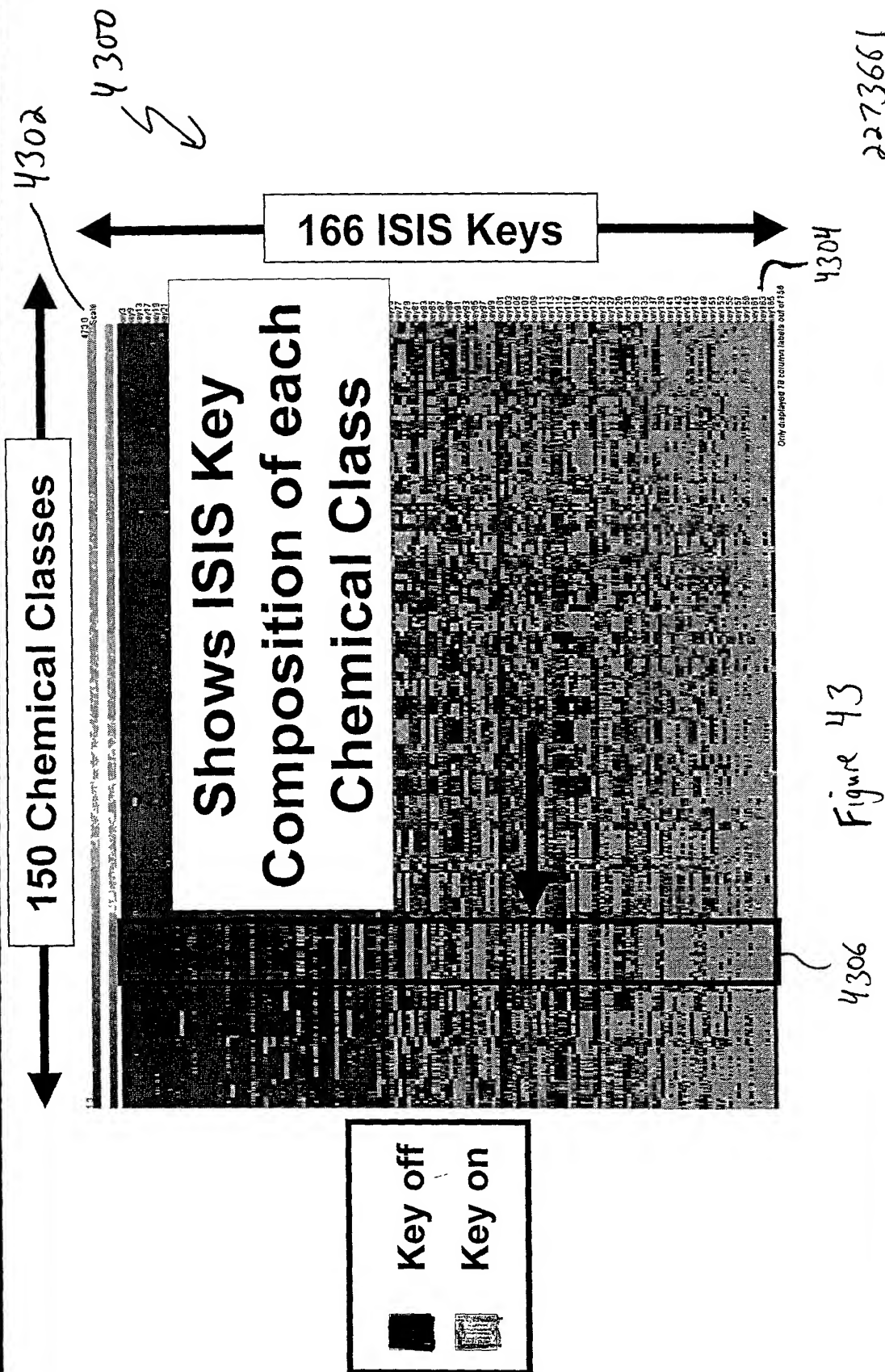


Figure 42

2273661

205120 26922001

# ISIS Keys



20251207 209400T

# ISIS Keys

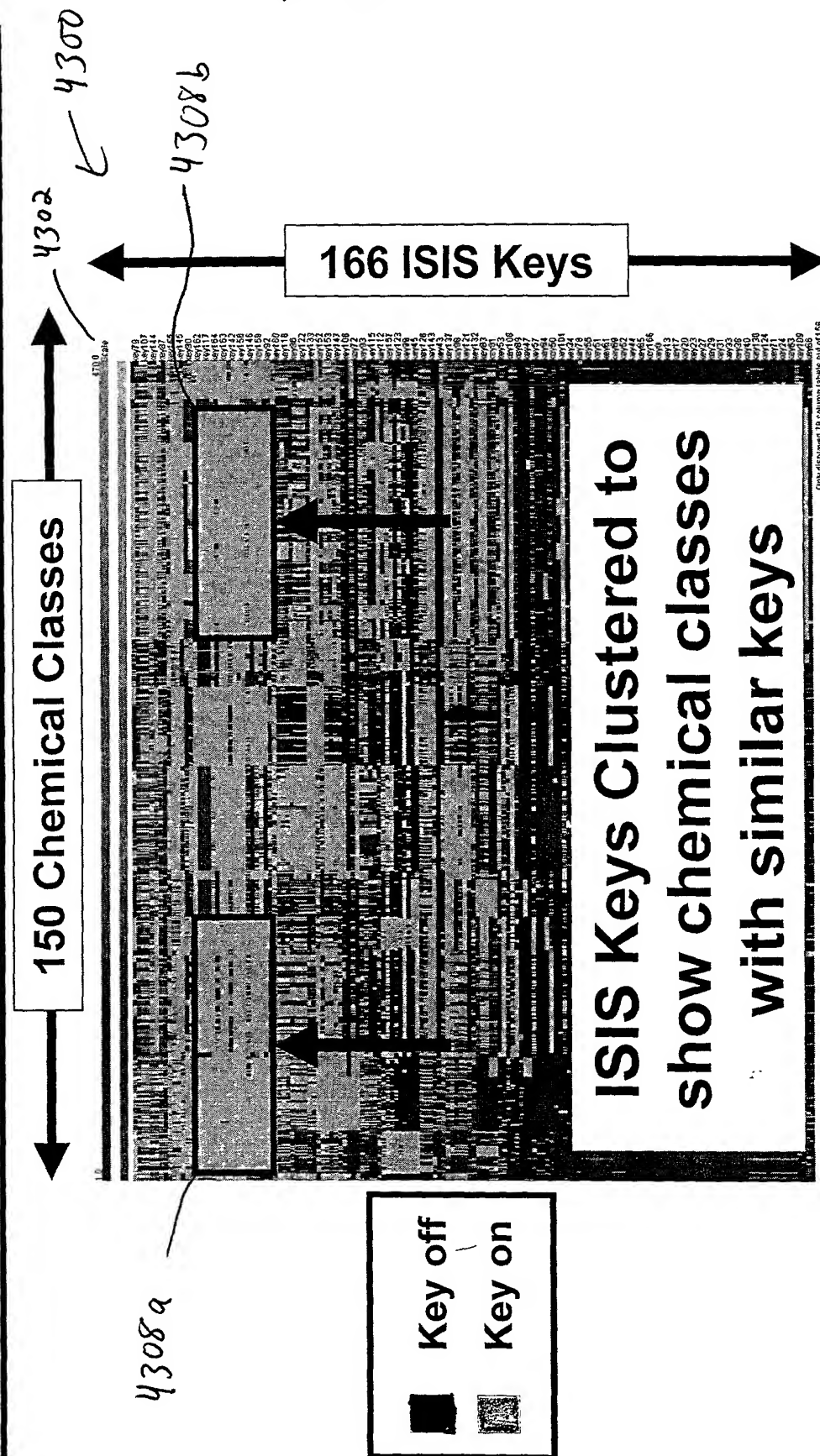


Figure 44

2273661



205420-66922001

# Association Rules - Visually

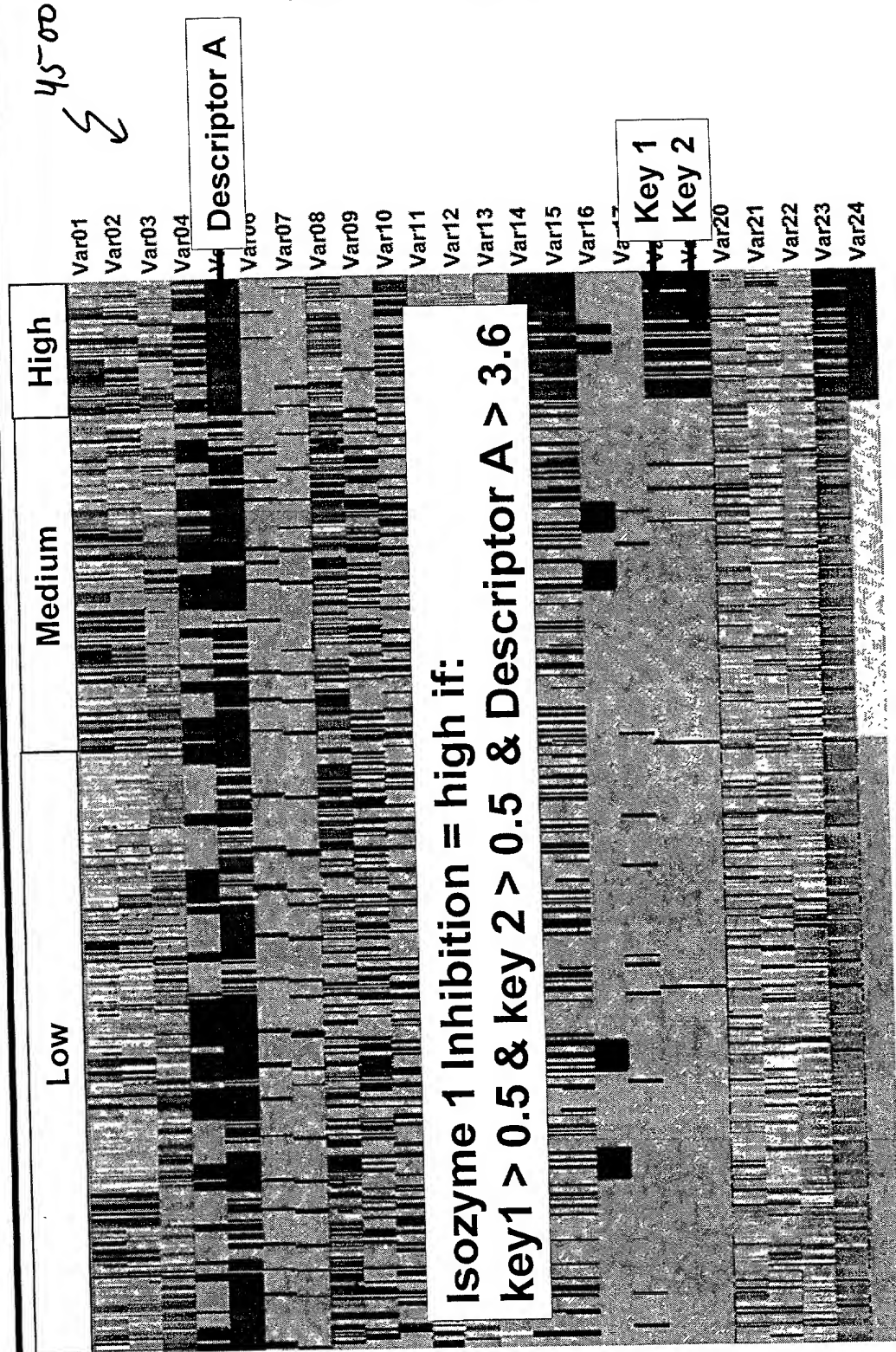


Figure 45

2273661

# Exploratory Overview

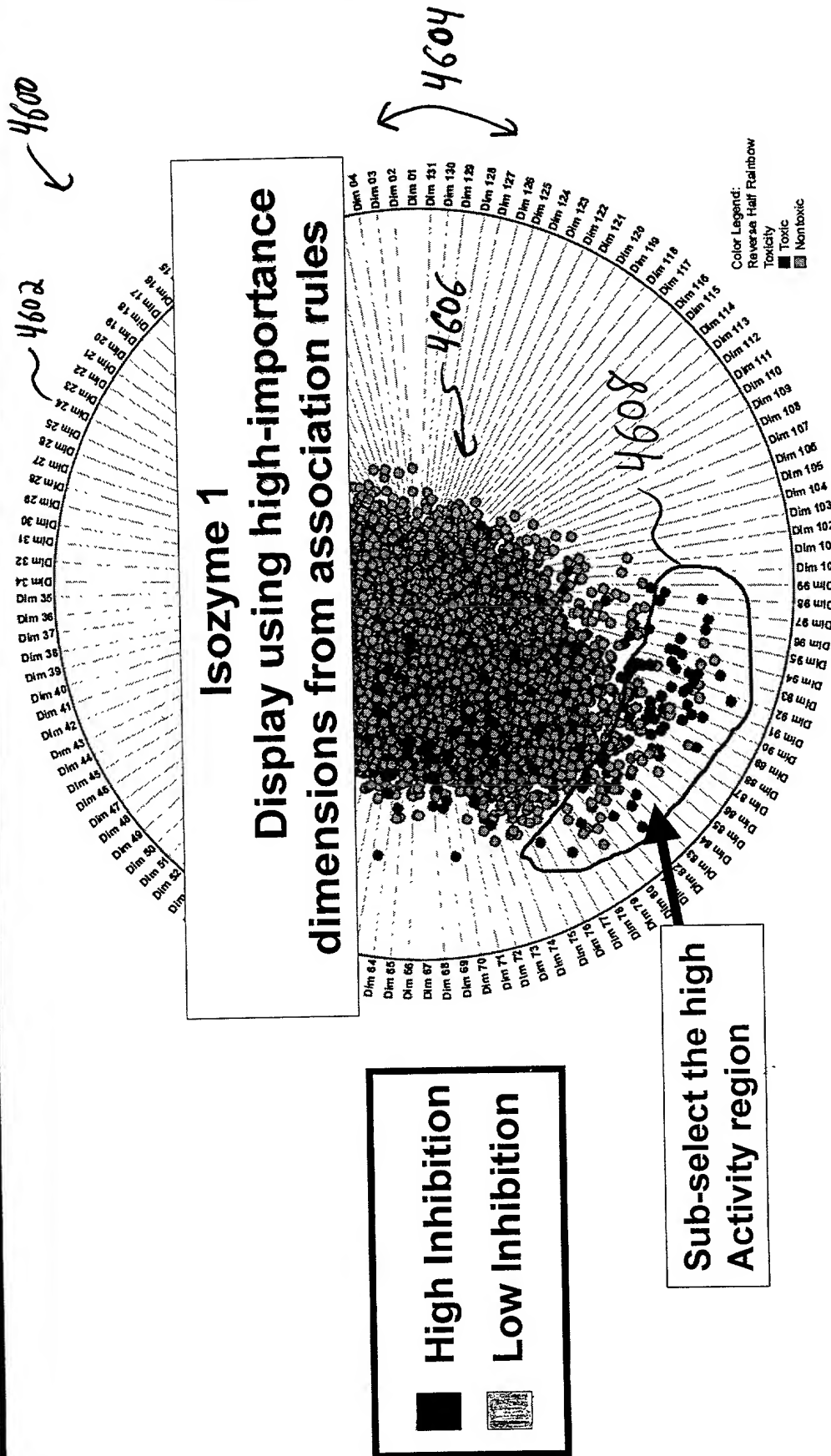


Figure 46

Figure 47

## After Genetic Algorithm

**Color Legend:**  
Reverse Half Rainbow  
Toxicity  
■ Toxic  
■ Nontoxic

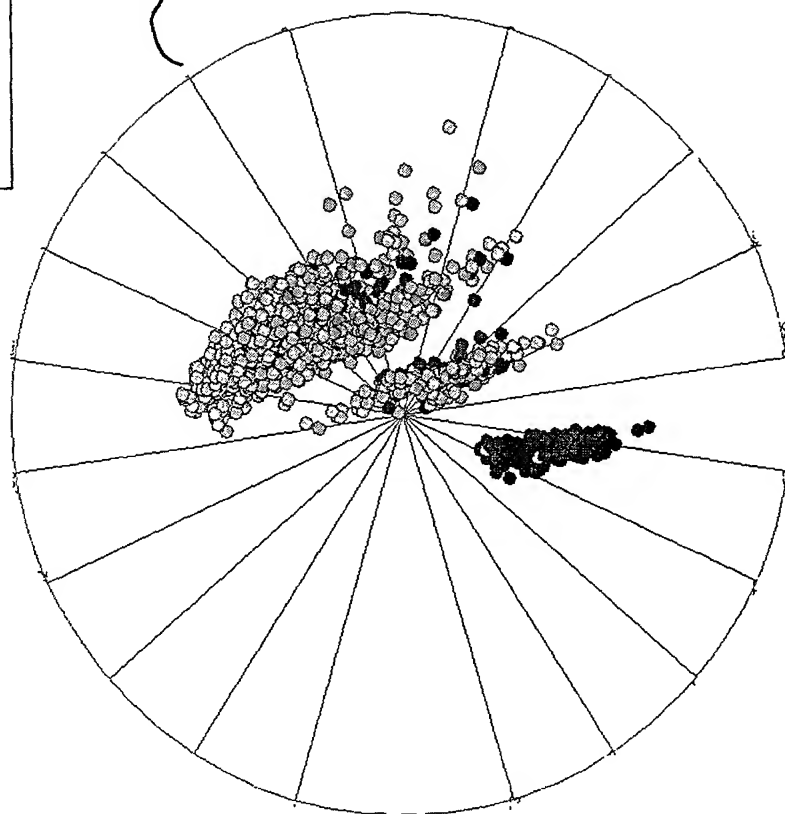


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# Toxic Distinction

After AP Algorithm

4800 ↗



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Inventor(s): Hoffman  
Serial No. Not yet assigned  
Docket No. ANV-004  
Contact: John V. Bianco 617-248-7870  
Express Mail Label No. EV072530498US Sheet 78 of 79

Color Legend  
Half Rainbow  
● Non-Toxic  
● Toxic

Figure 48

2023661

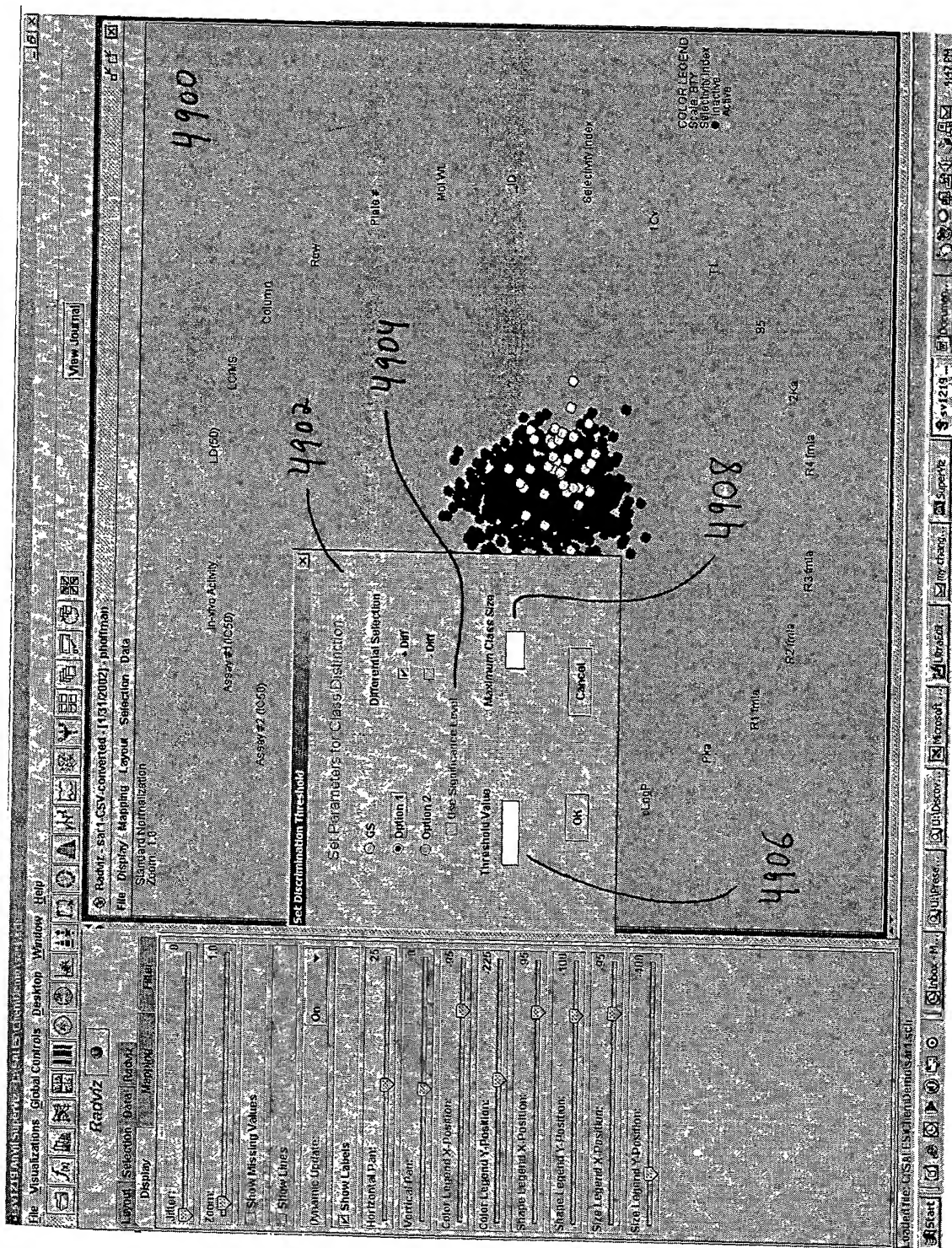


Figure 49